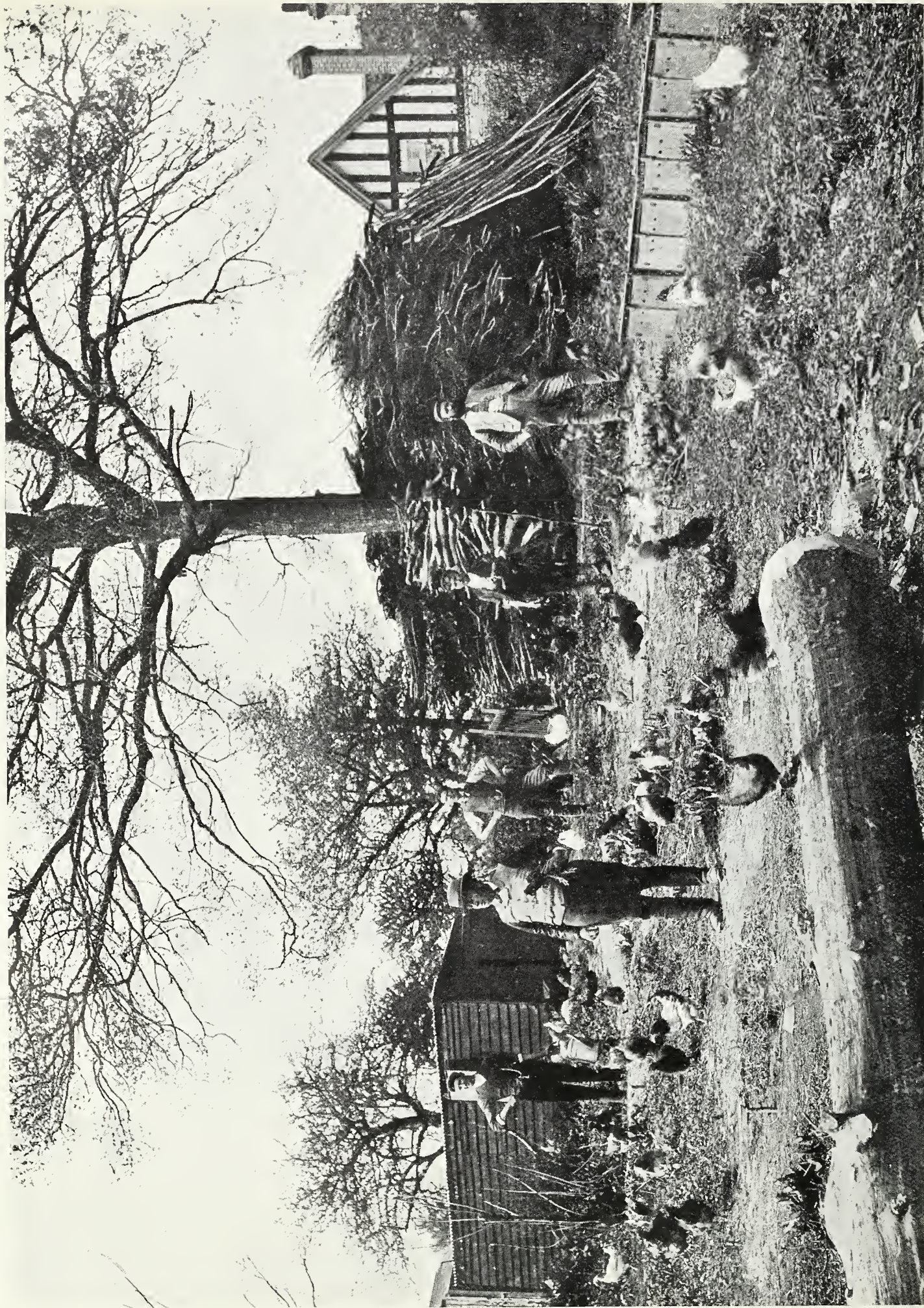


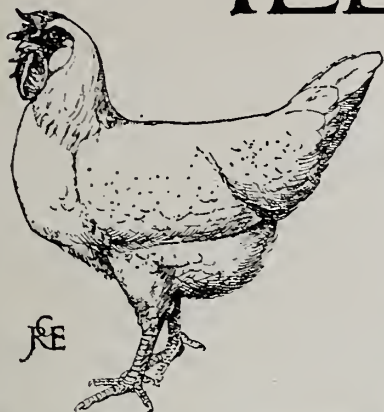
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FEEDING SITTING HENS.

THE ILLUSTRATED POULTRY RECORD



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DIARY OF THE MONTH.

EDITORIAL NOTICES.

Telegrams: "CHICKENDOM." Telephone: 1999 P.O. CITY.

The Editor will be glad to consider any MSS., photographs, or sketches submitted to him, but they should be accompanied by stamped addressed envelopes for return if unsuitable. In case of loss or injury he cannot hold himself responsible for MSS., photographs, or sketches, and publication in THE ILLUSTRATED POULTRY RECORD can alone be taken as evidence of acceptance. The name and address of the owner should be placed on the back of all pictures and MSS. All rights of reproduction and translation are reserved.

The Editor will be glad to hear from readers on any Poultry Topics, and all Queries addressed to the paper will be answered by experts in the several departments. The desire is to help those who are in difficulty regarding the management of their poultry, and accordingly no charge for answering such queries is made.

The Annual Subscription to THE ILLUSTRATED POULTRY RECORD at home and abroad is 8s., including postage, except to Canada, in which case it is 7s. Cheques and P.O.O.'s should be made payable to Brown, Dobson, and Co., Limited.

THE ILLUSTRATED POULTRY RECORD is published on the first of every month. Should readers experience any difficulty in securing their copies promptly they are requested to communicate immediately with the Editor. The latest date for receiving advertisements is the 20th of the month preceding date of issue.

The utmost care is exercised to exclude all advertisements of a doubtful character. If any reader has substantial grounds for complaint against an advertiser he is requested to communicate at once with the Editor.

Our Special Commissioner in Canada and the States.

In order that readers of the ILLUSTRATED POULTRY RECORD may be kept in touch with the advances made in poultry husbandry in Canada and America, we have arranged for a representative to make an extended tour in the two countries this coming summer. It is not our intention to publish a series of articles on Canadian and American aviculture, as our columns are already too largely bespoken for other matter, but we desire to impress on our readers that our representative is making this trip with the object of gathering information that will enable him to give trustworthy advice, either to intending settlers in the Dominion or to those who contemplate introducing American methods of poultry-keeping into this country. Such information and advice will from time to time be published in the ILLUSTRATED POULTRY RECORD in whatever form seems best to us. There is one other point. Our commissioner will be at the service of readers while he is on the American Continent, and if any of them desire information on a matter connected with the poultry industry there we shall be pleased if they will communicate with us. Letters should be addressed to the Editor at this Office, and—to save time and prevent any possible chance of miscarriage—should reach here not later than the 22nd of the present month.

The Irish Egg Trade.

Of late many and loud have been the complaints made with respect to the way in which eggs from Ireland are packed and forwarded to British markets, and bodies of grocers in different

sections of the country have called attention to this question. The shipping of stale and dirty eggs is all too common, and the use of material, such as damp straw and partially dried grass, is destructive of quality, comparing in these respects most unfavourably with Danish and other Continental supplies. We regret to say that these complaints have abundant justification, and we have seen cases opened which gave away the whole business. Something has been done, more especially by the Co-operative Societies in Ireland, but many of these do not appear to have learnt what should be the very alphabet of the egg trade, namely, good quality, clean shells, and sweet packing. There is an idea in Ireland that a prejudice exists in England against Irish eggs. That is not the case. If there is any feeling of that kind it is not against the Irish egg *per se*, but the way in which it is handled and marketed. In a recent issue of the *Irish Homestead* the facts which are militating against the egg trade are stated in a manner and with a frankness which would be impossible to a Saxon. Last October we published figures showing the remarkable developments of poultry-production in Ireland, and the important place it holds in relation to other branches of agriculture, but it must be recognised that the trade will be unsatisfactory so long as present methods continue. Were Irish eggs marketed with the same care as Danish and French they would rank first in extraneous supplies, instead of third as at present.

A Case in Point.

In our last issue we published an editorial note under the heading "Correspondents, Beware!" in which attention was called to the victimising of successful poultry-breeders by importunate letter writers. Apropos of this, our esteemed correspondent, Mrs. L. C. Prideaux, whose contribution on Yokohamas was published in our February number, forwards us a letter received by her from a stranger, which for sheer audacity would be very hard to beat. "Madame," wrote the egregious author of this missive, "there is a carnival and procession round—and district for charitable objects. Money is collected en route. Prizes are given for the best decorated vehicle, &c., and this year they have started a class for the 'greatest novelty.' I have been wondering if I could get a Yokohama Cock. . . . I should get a four-wheeled lorry and put a wire pen on it, and divide it. Would you lend me the Yokohama? I hope you will see your way to lend me one." It should be noted that the "charitable object" was only the thinnest of veils for this specimen of barefaced impudence, and that what the gentleman really desired to obtain was a prize, or at any rate some personal credit for himself. Or it may be that the charity and his own

glorification were so inextricably mixed up in his mind that he regarded the possible loss of a valuable bird to the owner through fright, cold, starvation, or theft, as one would regard the loss of a button. We have heard of a similar confusion of ideas in connection with other charities. In view of our correspondent's polite refusal to accede to his request, we can only suggest that he should ask for the loan of somebody's best hunter to draw the lorry, and perhaps requisition a lady friend's lap-dog as its passenger.

English Trade with the Transvaal.

We are led to call the special attention of English breeders to a question which concerns them in a serious manner. In a letter from a well-informed correspondent in the Transvaal, shown to us recently by the recipient, it is stated:

Pure-bred English birds are utterly discredited in this colony. As a rule they are too deficient in constitution for utility purposes. The birds bred by the great American breeders do splendidly here, and there is absolutely no doubt that this colony is lost to the English breeders. The Agricultural Department admit that they must import American birds, because the farmers will not breed anything else.

Personally I prefer to deal with some great American breeders, as they treat us well, at no greater cost. Englishmen have only themselves to thank for their utter failure in this colony. They have disregarded the needs of their customers and flooded the country with birds of debilitated constitution and poor egg-producing capacity.

The reaction against them is so strong that I think it will be a long time before they get a chance here.

We do not accept or reject the statement here made, but it is too serious to be ignored. Probably a portion of the blame, if the facts are true, is due to South Africans buying fancy stock at high prices. We know that in many cases prize-winners were insisted upon. But complaints have been many and frequent, and it is time that utility breeders on this side, of whom there are plenty, and whose stock in quality and constitution is all that can be desired, should take steps to preserve a valuable and profitable connection. The fancy in South Africa will continue to exist, but the greatest demand will be for utility stock.

County Councils in Poultry-Keeping.

Colonel R. Williams, M.P., treasurer of the National Poultry Organisation Society, speaking at the annual meeting of the Street Collecting Depot, called attention to the work of County Councils with regard to the promotion of poultry-keeping. Referring to the Dorset County Council, of which he is a member, he protested against the "whisky money," which should be used for technical instruction, being devoted to the education of pupil teachers in elementary schools, and said that should be a national

charge, as the pupil teachers, after going to college, rarely returned to their own county, but went off somewhere else. The money ought to be spent upon subjects which were of importance to the counties in which it was raised. There can be no question that in the majority of counties, since the Act of 1902, there has been less attention paid to technical education, in which respect poultry-teaching has suffered greatly, and money which was practically allocated for useful training has been used for other purposes. There are counties in Britain in which not a penny has been spent in teach-

antagonistic; but pressure must be brought to bear upon them. Unless farmers and poultry-keepers bring that pressure, the fault is their own. They must throw off their lethargy and claim their just and equitable rights.

A Notable Decision.

The report in our Marketing Section of a case tried in the Manchester Police Court, in which a salesman was heavily fined for selling foreign geese and turkeys as English, will be read with satisfaction by producers and consumers equally. That there is considerable fraud of this nature



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DUCK BREEDING PENS AT "GALLINA," RUEIL, FRANCE. SHOWING HOW THE WATER IS CONDUCTED THROUGH THE PENS AND SHELTER GIVEN.

ing this subject during the last three or four years, and in many others instruction has been cut down to its lowest limit and is totally inadequate to the growing importance of this branch of agriculture. We hope that the remarks of Colonel Williams will be the means of rousing farmers and poultry-keepers to make a determined effort to secure the share of educational funds to which they are justly entitled. County authorities will do no more for poultry than they are forced to do by public opinion, and in some instances they seem to be

cannot be questioned, but, unfortunately, evidence is not always obtainable which would ensure the conviction of those guilty of such practices. The case in question was practically undefended, as there was no doubt whatever as to the facts, so much so that the defendant did not go into the box. The stipendiary magistrate took a very serious view of the case, and the fine was substantial. The Board of Agriculture is to be congratulated upon the conviction secured, and we hope it will take further steps in this direction. It may be mentioned, however, that it cannot act

unless it is called upon to do so by those who are interested. Mr. W. H. Carter, who deserves warmest thanks for his efforts, saw foreign birds being sold as English in Shudehill Market last December, and communicated with the Board on the subject. As a result, an Inspector was sent with Mr. Carter, and, fortunately, the evidence was secured. We urge, therefore, that many others will be animated with the same public spirit, for it will be in this way that a stop will be put to a custom which is only too common. It is satisfactory to find the Board of Agriculture ready to defend the interests of producers and consumers, and the help of others is what should be readily obtained.

The Williams Sexophone.

Readers will remember that reference was made in the Diary of the Month in the March issue of the ILLUSTRATED POULTRY RECORD to the Williams Sexophone, the new instrument for the determination of sex. In view of the great interest which has been awakened among scientists and poultry-keepers, and owing to the importance of the discovery, if it proved to be correct, a special demonstration and test was arranged by Mr. W. T. Stead, and held at Mowbray House, Norfolk-street, on Thursday, March 11. The instrument—to call it this for want of a better word—consists of a pith ball suspended on a copper wire. When this is held in the hand over a male the pith ball is said to rotate; when over a female it swings with a pendulum-like motion. It is stated by the inventor that it is not only possible to determine the sex of a bird or animal, but that his instrument will foretell the sex of the future chicken hatched from any egg. The first test made by Mr. Williams was on 14 two-day-old chickens which were supplied by the College Poultry Farm, Theale. Without any hesitation the two motions were distinctly indicated, and the birds were toe-marked accordingly. Following this 66 eggs were tested, supplied by Mr. W. M. Elkington and the College Poultry Farm, Theale, the results showing that some were male, others female, and a small number infertile. In this latter case no movement was noticeable. To make the test more complete a number of the eggs were again tested, but by members of the company present, and it must be stated that the result of this retest did not coincide in all cases with the forecast made by the inventor. Careful notes were made by those present, and after incubation the chickens will be toe-marked according to Mr. Williams's forecast, and as soon as the birds reach that age when the sex is discernible a full report will be issued by the committee. The general feeling of the meeting was distinctly sceptical as to whether the instrument had justified the claims made for

it, but judgment was reserved until the results are made known.

Mr. E. W. Richardson.

The sale of Mr. Richardson's stock and plant at Rayne, Essex, is an indication that he is no longer able to attend to it, owing to the serious state of his health. Since last autumn he has suffered from illness, aggravated, no doubt, by the onerous nature of his work in connection with the Twelve Months' Laying Competition. All who have known the earnestness and zeal with which he has acted as secretary of the Utility Poultry Club will deeply sympathise with Mr. Richardson in his time of affliction.



Indian Corn or Maize forms the Chief Ingredient in the Diet of American Fowls. This photograph exemplifies the luxuriance of its growth. It makes a very valuable shelter for poultry of all kinds.

THE PRESERVATION OF EGGS.

BY EDWARD BROWN, F.L.S.

IT is a little more than a hundred years ago that the first recorded patent was taken out for the Preservation of Eggs—the Jayne method of Lime-Water, which is still largely used. Since that time a multitude of other systems have been brought forward, some of which have proved successful, but the great majority either offered no advantages over those already employed, or were commercially impracticable. During the past few years nearly forty methods have been submitted to the National Poultry Organisation Society, and in many of these I have made careful tests as to the quality of the preserved eggs supplied by the inventors, and kept for some months under my own observation, whilst in others we have carried out the work entirely, supplying the eggs ourselves. Several of the systems offered have been secret—that is, they must be applied by experts at special establishments, and, consequently, on an extensive scale, to be profitable. Those, however, were not of any practical value in this country. The results of these tests have been very varied: some good, some bad some both. Even the first-named have abundantly proved that a really new-laid egg is one thing, and that a preserved egg—no matter how preserved—is another. That the latter is required to meet market requirements, to provide for the food supply of our people during the period of scarcity, is unquestionable. But to say that eggs can be so preserved as to be indistinguishable from the fresh product after, say, six months is nonsense. Proof can be adduced that in nutritive value one is almost equal to the other, though not quite, but odour, flavour, and palatability have all to be taken into account. It is in these latter that the preserved egg fails. All the figures and fractions of chemical analysts cannot alter the fact that a boiled preserved egg is inferior in taste and smell to its newly produced compatriot.

Until the problem of enhanced winter egg-production is solved preserved eggs we want and must have. Were it not for these the prices of eggs from September to January would be prohibitive. Probably 6d. an egg would be reached, if anyone would pay it. The result could not fail to be disastrous to the poultry industry in that our people would discard this product and turn to other things. It should be our object to induce them to eat more, and not fewer, eggs. That can only be secured by sale at prices which they regard as reasonable and equitable.

Object of Preservation.

As the spring has been, and always will be, the time of year when eggs are produced in the greatest number and prices range lowest, the object of preservation is to transfer a portion of the supplies from the plentiful to the scarce, from the cheap to the dear season, not only to secure the higher rates then obtainable, but to avoid glut by removing the surplus. As is stated in my "Report on the Poultry Industry in Denmark and Sweden": "Not only is the trade in preserved eggs profitable in itself, but by relieving the glut during the spring those sold at that season of the year command much better prices than if forty to fifty millions more Danish were placed on the market." It is freely acknowledged in Denmark that the success achieved would never have been realised had not preservation been adopted.

Who Should Preserve?

Discussion has often arisen as to who should undertake the work of preservation. In many Continental countries, in America, and to a lesser extent at home, this is done by private traders or companies, who purchase eggs as a speculation, hold them for the necessary period, and sell at such time as they think well to do so. That the benefits to producers are considerable is apparent. The enhanced demand thus secured has increased spring prices, which is due to the fact that large quantities have been taken off the market and have thus prevented the lower rates which would otherwise have prevailed. This we have found in connection with the National Poultry Organisation Society's depots, as in Denmark. But in both these latter instances preservation takes place in the locality where the eggs are produced, so that supplies are put down at an early date after they are laid. When the work is undertaken on a large scale at a few centres the eggs are drawn from a wide area, and, consequently, they are stale before storage takes place. My observations in Europe and America have shown that frequently the eggs are from ten to twenty days old ere the process is commenced. Under such conditions results can hardly be satisfactory. Hence preservation should be undertaken by poultry-keepers themselves or by Co-operative Depots or traders in the immediate localities where the eggs are produced.

When to Preserve.

Much depends upon the time of year that the eggs are put down. Our advice has always been to sell for present consumption whenever a reasonable and profitable price can be secured. Hence it is a question of surplus supplies. Apart from the question of price, which is an important factor, as it is useless preserving unless there is a margin of profit, eggs are better in every way both as to quality of contents and strength of shells during the natural laying season. The best months are April and May. Experience has shown that the eggs laid during those months keep better than those obtained before or after. Prior to the middle of March and from June onwards prices do not usually allow profit to be secured. Moreover, summer eggs seldom keep as well as those laid in the spring, even though preserved for a shorter period.

What to

Preserve.

The final result, so far as quality is concerned, depends largely upon the method of preservation adopted, upon the conditions under which the eggs are kept during the entire period, and on their treatment after they are taken out for sale; but, however perfect all these may be, they will utterly fail unless, when subjected to the process, eggs are of first-rate quality. It is this fact which is so often forgotten, more especially by producers and traders who operate on a small scale. A really new-laid egg, provided the conditions are favourable, will come out six months later excellent for cooking purposes, having, however, lost something of its pristine value, whereas a second-quality egg will emerge with an equal loss, and therefore inferior by so much to the first. A stale egg will probably come out bad, totally unfit for food. Hence it is all-important that the eggs selected for this purpose shall be really fresh, chosen because they are full, strong in the shell, well formed, and

sound in every way. The slightest flaw or crack will be fatal. Every egg should be carefully and rigidly tested before it is preserved, and all those which cannot grade as new-laid should be sold for immediate consumption. As already stated, it is in this respect that many Continental and American eggs fail. They begin badly, and can never be good. The Danes have shown an example in this respect which is worthy of emulation.

A further point is that infertile eggs keep better than those which contain a living germ. That has been known for two thousand years, and later experience, more especially in connection with supplies from South Australia, have fully confirmed its truth. If farmers and others

would keep separate breeding-pens, using eggs from these for hatching, removing the males running with the ordinary laying stock from March onwards, such eggs as are preserved would turn out much better than is the case at present.

Where to

Preserve.

The temperature to which the eggs are subjected during the preservation period will exert considerable influence for good or evil. It should be remembered that they have to pass through the hotter months of the year, when the tendency in all buildings above ground is to rise above the safe point, unless they are kept in cold storage. More than 40deg. F. means change in the egg contents, and the higher the temperature the more rapid the change. For that reason preservation generally takes place in cellars, either wholly or partially below ground, and any windows or ventilators should be on the north or north-west side, so that the sun's rays may not find access. The illustration is reproduced from a photograph which I took at Aarhus, in Denmark, entirely under ground, and with a mass of buildings above and on the south-side, so that, entering on a summer's day, it felt almost like an ice-house.



[Copyright.]

EGG PRESERVING TANKS AT AARHUS, DENMARK.

Here the eggs are accommodated in large cement tanks, each holding about 70,000. These tanks are about 10ft. square and 5ft. deep. The cellars are well ventilated, and practically the temperature is equable all the time. This is typical of many cellars I have visited on the Continent, both in Eastern and Western Europe. The new preserving room at Street is partly underground, with a door on the east side, and well protected by the main buildings from the sun. Here the eggs are kept in galvanised iron tanks, each holding about 5,000. These are convenient where quantities are not very large, as they are soon filled, and thus are not disturbed until the time comes for sale. They cost about 25s. each. As this system grows, we believe it will be found profitable to build special cellars for the work, as in Denmark and elsewhere.

Methods of Preservation.

(a) BUTTERING.—Those who only intend to keep the eggs a few weeks for home consumption will find it enough if they butter the eggs—that is, rub a little fresh butter over the shell, and store in a cool place. Or they may use glycerine or any sweet fat for the purpose, taking care that the shell is coated. The object is to close the pores, preventing escape of moisture by evaporation, and of ingress of any odours or minute forms of life. That is not to be recommended for longer periods.

(b) LIME-WATER.—This, the oldest method used, is probably employed more than all other systems combined. The great bulk of Continental eggs received in water are “limed.” It has also the practical merit of being the least expensive. For large operations I have no hesitation in saying that it is to be preferred, in spite of the fact that the shells are thickened by deposits of lime thereon. An advantage to retailers and consumers is that the fact of “pickling” is revealed by the rough shells. The solution is formed by mixing freshly slaked lime with water, say, 1lb. to 2lb. of the lime to five gallons of water, stirring it well two or three times a day until the whole forms a milky fluid, when 1lb. of salt is added to the above quantities. After standing a few hours to settle, the liquid is poured into the vats or tanks or tubs, whichever are used, when they are ready for the eggs. It may be observed that the virtue of the lime, as of the silicate of soda referred to later, is to kill all life in the water, which thus keeps sweet and pure. The quantity required is not so great as might be imagined, and if the tank is one quarter filled at first, more can be added as required. The eggs should not be less than 4in. from the top, so that they may be entirely covered by the liquid, which forms a skin or fine crust and prevents dust or dirt getting to the eggs.

(c) WATER-GLASS.—For smaller operations the system which has become most popular is by means of what is popularly called “water-glass,” which is a solution of silicate of soda, the value of which for this purpose was discovered some years ago by a German chemist. The results obtained are excellent, quite equal to those of lime-water, and not thickening or roughing the shell to the same degree. The shells come out clean and fresh-looking. The solution is generally sold of full strength, and a 5 per cent. mixture is about right—that is, 5 per cent. of water-glass to 95 per cent. of water. The latter should be pure and preferably boiled, mixed hot, but allowed to become quite cold before use. It has been found that a stronger solution affects the flavour of the eggs. Mr. Reynolds, of Street, fills his tanks three-quarters full with a solution consisting of $\frac{3}{4}$ lb. to each gallon of water, and when the eggs are all in, adds to the top a solution of 1lb. water-glass to the gallon. This method is more expensive than lime-water. Small quantities bought in time will cost about 1d. per score eggs, but as the silicate of soda can be purchased in bulk at about 8s. per cwt., for large quantities the cost, apart from labour of preparation, for preserving fluid will work out at 1s. per thousand eggs. Lime-water in many districts would not cost more than 1d. to $1\frac{1}{2}$ d. per thousand.

(d) COLD STORAGE.—I do not need to say much under this heading, in spite of the fact that in Canada and the United States it is largely and almost universally adopted. But it requires to be carried out by speculative traders or companies, and on a large scale. Nor have the results been satisfactory, as there is a strong tendency to the formation of moulds, and eggs preserved in this way go bad rapidly after they are brought into the normal temperature. Something has been done to improve this weakness, but when eggs have to be retailed out in half-dozens other methods of preservation are superior. The best temperature at which to keep the eggs is 29 to 30deg. F. There must be a constant circulation around them of pure, fairly dry air, and, when removed, it seems to be necessary to change from one room to another, each slightly warmer.

(e) OTHER METHODS need not concern us here. Recently statements have been made as to a scheme by which air is exhausted from the egg, which is then dipped into hot paraffin wax, but that is again only suitable for adoption on a large scale, as a special plant is required. Such eggs as I have seen were good as cookers, but no better than those preserved by lime-water or water-glass.

How Long to Preserve.

The time of sale of preserved eggs is during October, November, and December, and hence

six months is the average period for which they are kept. Observations made by Mr. J. Henrick, B.Sc., of the Aberdeen University, have shown that with water-glass longer keeping causes changes which would make the eggs undesirable as food. In America much trouble has arisen from holding eggs over to another year. That is undesirable in every way, and eggs should be consumed in the autumn following their preservation, whether the price realised be profitable or otherwise.

After Preservation.

When lime-water or water-glass is used, the

tanks can be emptied rapidly by use of a perforated scoop with turned edges, because the liquid acts as a buffer, preventing breakages if handled gently. The operators should use india-rubber gloves and gauntlets. As they are taken out the eggs are well washed in running water, and then placed upon wire trays, which may be stacked after draining to dry, which soon takes place if they are in a good current of air. Finally, before packing, they should be rigidly tested so as to remove all that are bad or doubtful. And in all cases they should be sold as preserved eggs.

MODES OF INHERITANCE.

A STUDY IN HEREDITY.

BY REV. JAMES MOGG.

IN some poultry-yards we find birds which appear to us as though they were perfect reproductions of the parent stock, and the breeder, if he knows nothing of hereditary resemblance, will tell you it is complete. If, for instance, a flock of Silver Wyandottes collected in the same yard and "bred true" or "line-bred" for several years, they would to the untrained eye present no individual characteristics. In other words, there seem to be cases in which generation succeeds generation without any variation. But is this a fact? If we carefully examine each individual bird we shall find that in most cases the apparent absence of variation is illusory, and due to our lack of acquaintance with each individual bird. A flock of sheep may seem "all the same," but only to the careless eye; the shepherd knows them individually, and could demonstrate that they are very different in many details which are unnoticed by the careless or untrained observer. "Like peas in a pod" is often quoted to show marked similarity, but often a minute examination shows that there is a marked dissimilarity, and we find that the saying is not the intertation of fact.

In horses, cattle, sheep, dogs, rabbits, pigeons, and fowls there is ample opportunity of studying modes of inheritance.

It is, however, safe to predict that the offspring of a pair of birds (or a pen, if properly mated) will exhibit more or less complete hereditary resemblance to the parents. It is, as all experimental breeders know, unsafe to predict that there will be an absolutely complete resemblance. The more a breeder knows of the art of breeding, the more sure is he that variations crop up from some unknown cause. When we deal with "line-

bred" birds we are safe in saying that a large percentage of their offspring will resemble their parents. To say *all* will resemble them is not true.

There are many interpretations of the modes of inheritance, but the careful breeder knows that all the ordinary phenomena are of a piece, and he is looking forward to the time when all the methods will be embraced in one general formula. At no very distant date there will be a modification of Galton's Law of Ancestral Inheritance, and there is no doubt that others will be explained in Mendelian formulæ. We want to consider in this short article three modes of inheritance—Blended, Exclusive, and Particulate—and see how they work out in the breeding of poultry. As we define and illustrate these modes of inheritance we want to notice, even at the risk of reiteration, some saving clauses which will, we hope, make our meaning clear to the novice in poultry-breeding. We have pointed out that cases of apparently very complete hereditary similarity may be illusions due to our inability to appreciate the differences that really exist; but, on the other hand, we must be careful to guard against the error of supposing that conspicuous differences between offspring and parents spell out an incompleteness in the inheritance itself. The fact that the resemblance reappears in the third generation proves that the incompleteness is in the *expression*, not in the inheritance. The qualities are there in a latent form, kept latent by other characteristics, or they may be undeveloped by reason of malnutrition.

In these days, when so much is made of cockerel-breeding pens and pullet-breeding pens, it would be well if those who desire a pen of

birds to produce good pullets would remember that other characteristics besides colour must be taken into consideration. For instance, if we want good pullets we must see to it that the male bird resembles its mother in the special features we wish perpetuated in the pullets. On the other hand, if we desire good cockerels (and who does not ?), let the hens resemble the father, and we will find that in the first and second generation we get what we aim for, but in the third we shall have a reversion to the old type. Keeping this idea in mind, the breeder will know exactly what to expect, and make his plans accordingly.

Blended Inheritance.

By this we mean that the special features of the two parents are intimately blended in the offspring. The colour of the feathers may be said to be the mean of two extremes. It is not to be understood that this mean will be obtained in every bird hatched. Last season it was my pleasure to experiment for a very popular exhibitor with extremes in colour characteristics, and the result was that he got a large percentage of the progeny even in colour ; the others are being kept for stock purposes this year, with the exception of a few sold to other breeders to improve their strain. It must not be forgotten that if the male bird is overworked the results will not be as good as when his work is normal.

The experiment, however, was highly satisfactory, for it proved the possibility of producing maternal and paternal peculiarities in the offspring ; in other words, of getting "Blended Inheritance." When we get quantitatively more of the paternal or maternal quality expressed we know that in the blended inheritance one of the parents is prepotent. If, however, the characteristics of one parent are predominant we get what is known as "Exclusive Inheritance."

Exclusive Inheritance.

When there is an expression of a given character, an absolute prepotency on one side or the other, or when the maternal or paternal characteristics are reduced to zero, the inheritance is called exclusive. When the whole offspring favour the father or the mother we use the term to show preponderancy. The *impressions* which breeders have should not be formulated as laws. There are many popular generalisations held by poultry-breeders which the last decade has proved to be unsound. Let me name one. It was held by many that the male bird influenced colour more than the female, she being responsible for size and type.

The practical application of the new law of inheritance, as propounded by Mendel, has put the old ideas in the background of history, and

to-day birds are chosen which will give *exact* results in their offspring, and these results we are able to calculate beforehand. All generalisations are mere guesses. We can only say that in some cases the expression of the inheritance as a whole, or in regard to some particular character, may resemble one parent more or less exclusively. Sometimes the male bird is prepotent, at others the female. It is when this is known that the best of both sexes are bred, and the breeder who notes these special periods is able to act upon them to the best advantage. It is worth remembering that where the expression of inheritance markedly follows one parent it does not follow that the contribution from the other parent has been lost, the chances being that in the next generation they will reappear, as they are simply latent in the germ-cells. The knowledge of this *fact* saves the scientific breeder years of time and trouble, and gives to his birds a new sense of values.

Particulate Inheritance.

Where the peculiar characteristics of two birds do not blend, but are separately expressed in one bird, as in the Pile Wyandotte, this is called particulate inheritance. The paternal colour is seen on some parts, the maternal on other parts. It is a strange fact that eye-colour is generally exclusive. There are exceptions, but we have none in the poultry world so vivid as that which the English sheep-dog gives. It has a paternal eye on one side and a maternal one on the other !

If breeders note the pedigree, the vigour, the age, in other words, the constitution of the birds mated, then they will be able to gauge results on a scientific basis. A highly bred and well-matured cockerel mated to commonplace hens will stamp the progeny with his characteristics. If, on the other hand, young pullets are mated to a worn-out cock they express themselves in the progeny to a very marked degree. Sometimes, however, there are no marked differences in the parents, and the result is that the inheritance may *blend* in one hatch, be *exclusive* in the next, and *particulate* in the third. These descriptive terms help us to keep our facts in order, and explain the differences which cause so much heartburn to the novice in regard to the results which he gets from eggs hatched at different times from the same birds. Experiment helps us to interpret these facts, and spells out to us a new use of our stock birds. The facts go to prove that the expression of inheritance follows the parent whose germ-cells are the riper at the time of fertilisation. A study of "germinal selection" will make this clear to those who require more elaborate details than we are able to give in this short article.

HOW POULTRY-KEEPING AFFECTS THE FARMER.

BY W. M. ELKINGTON.

IN considering how the interests of the farmer may be favourably influenced by the poultry industry, we must not deceive ourselves by picturing the typical agriculturist as ultra-conservative, blind to his own interests, slow to move, pig-headed, or something still less complimentary because he, as a class, does not readily respond to the invitation to come and help himself to the seven millions sterling that, through his neglect, filter into the pockets of the foreign egg-producers. No doubt there are still in existence many of the old class, who regard poultry-keeping as woman's work through sheer inability to grasp modern ideas. But the typical farmer of the twentieth century is a well-equipped individual, with a particularly bright intelligence, and an instinct trained by force of circumstance into ferreting out new sources of revenue, and if you talk to him about poultry-keeping he will be very pleased to listen to all that you have to say ; and if he fails to be convinced that the royal road to the millennium is by way of the colony system of farm poultry - keeping, it does not necessarily follow that he lacks enterprise and initiative.

Regarding the modern agriculturist in the correct light—as a bit of a scientist, a bit of a mechanic, and a big piece of a business man rolled into one—we must give him credit for possible motives for his comparative neglect of the domestic hen, and in looking into those motives we shall no doubt discern the directions in which national and individual effort might improve the conditions of farm poultry-keeping, and render the branch industry more attractive to many agriculturists. I called upon a neighbouring farmer a little time ago—one of the up-to-date class, whose cowsheds, milk floats, well-filled rick-yards and barns, and orchards of young *and good* fruit trees, testified to a busy life and modern ideas—and I expressed my surprise that the only fowls about his extensive farm were a score or more of useful-looking crossbreds that were scratching round the ricks. I even went so far as to suggest that another 200 laying hens might easily be accommodated in flocks of 30 or 40 about the farm, and I was assured that the matter had already received earnest consideration and had been rejected because there was no one available to take special charge of the poultry. This farmer was sensible enough to realise that a particular feature of this description requires the attention of some person with an interest in, and some knowledge of, the

work, and as his own time was fully taken up in looking after the many branches of his business and in keeping his books, and his wife was fully occupied with the dairy and the house, the poultry would have to be entrusted to the care of an unskilled labourer. On the whole, the farmer thought it would be better to let the subject alone for the present.

No doubt he was very wise in coming to this decision, for the average unskilled agricultural labourer is not a suitable person to undertake the practical management of a farmer's extensive flock of poultry. These men have not made the same intellectual progress as their masters, for the more enterprising among them drifted to the towns when hard times came on the land. But here would appear to be a chance for the more intelligent farm labourers to better their positions by making themselves acquainted with the practical work of poultry-keeping. A man so equipped, who could undertake the control of his master's poultry and make them pay, besides filling in his time with other work, would, I venture to think, be worth a shilling or two more per week than the mere mechanical labourer with no such ability. To produce men of this class the farmers themselves may do much by encouraging their young hands to interest themselves in the subject, whilst country schoolmasters and County Council lecturers between them might bring about a great improvement. In a small country town where nearly every cottage has a large garden, and almost every cottager keeps fowls of some description, I tried some little time ago to obtain a boy just leaving school to help with my poultry. I thought I should have no difficulty in finding an intelligent lad who had been accustomed to looking after fowls, and who would, at any rate, know something about feeding them. Unfortunately, however, there was no such boy in the parish. I could have had several who were quite moderate performers on the piano, and one or two who could even boast of an acquaintance with the violin, but the best I could secure was a lad who admitted that his mother kept fowls, that he had seen her feed them, and he thought she fed them after breakfast and after tea ; but what and how much they had to eat he had not the remotest idea.

But lack of qualified assistants is only one of several hindrances to farm poultry-keeping. The fox question has to be taken into consideration, and as scattered flocks about the fields are especially vulnerable the farmer must count his risks. He

may be a participant or a sympathiser with the sport, in which case he may or may not keep poultry for the benefit of the fox, and cut his losses for the good of the hunt ; or, on the other hand, he may be passively inimical to the sport, yet compelled by circumstances beyond his own control to refrain from open warfare or even from making claims for compensation.

Above and beyond these looms the great question of marketing. It has, without a doubt, the most important bearing upon the poultry-keeper's operations, for what use is it, though the farmer may produce eggs at twopence per dozen cheaper than any other man, if he loses the advantage when it comes to marketing? This question is governed largely by locality. In some favoured districts, as in my own, where the residential population is large, or there are populous centres in the immediate vicinity, the farmers know nothing of the marketing difficulty. I have never heard a local farmer complain that he could not sell his eggs, or that the prices were not high enough for him ; the trouble has always been, in winter, at any rate, that there were not enough eggs to go round the customers. But I might go into the next county, or perhaps twenty miles away, and find farmers pleading that it was not worth their while to keep fowls on account of the marketing difficulty. Those who do not know our little island, heavily populated as it is, would find it difficult to credit the fact that there are scores of districts, embracing innumerable small towns, villages, and farms so remote that individual producers can only place their goods in a favourable market at a cost that practically runs away with all the profit, and nothing has more clearly demonstrated this state of affairs than the work of the National Poultry Organisation Society. In instituting the system of co-operative marketing in isolated localities, it has thrown light upon the stupendous difficulties that farmers and poultry-keepers had to contend with before its advent, and what other farmers and poultry-keepers are being oppressed by in localities not reached by the institution.

The remedy is obvious. It has been applied by the National Poultry Organisation Society, and has never failed to effect a cure ; but as the work of a society supported by voluntary contributions must necessarily be limited, it remains for a national system of co-operative marketing to come to the aid of remote districts, so that farmers may have an opportunity of fully realising the profitable nature of poultry-keeping upon a system that has been proved economical and productive.

I have heard it stated that poultry-keeping is a more suitable industry for the small holder than for the large farmer. That, I think, must depend

upon the extent of the holding ; and, if the statement is intended to imply that confined runs are preferable to open ranges, the sooner the idea is dissipated the better for the agricultural industry. Of the several advantages possessed by the colony system of farm poultry-keeping economy stands first and foremost. The difficulty that oppresses the poultry-farmer pure and simple, or the small holder who adopts the plan of confined runs, is in producing eggs and chickens at a sufficiently low cost, and it is the farmer's ability to run any reasonable number of fowls upon his land without charging them a farthing for rent and at a much lower cost for feeding, owing to the animal, insect, and vegetable life the birds find in plenty, that makes all the difference between success and failure in keeping poultry for profit.

Beyond this, farmers must seriously consider the domestic hen as a valuable factor in cultivating the land. At one time a great many agriculturists seriously regarded poultry as a menace to pasture, and I recollect about fourteen years ago getting into serious trouble with a farmer because a flock of fowls declined to respect the boundary and trespassed upon one of his pastures. Nowadays it is not so difficult to convince a farmer that a hen eats very little grass, does more good than harm in scratching (as anyone may discover whose land is addicted to growing moss), and gives a rich return in excrement for any seeds and animal life she may take away. To the best of my knowledge there has never occurred a case where it has been proved that poultry, distributed in reasonable numbers, have caused any real injury to pasture ; and there are scores of instances where farmers have admitted that the poultry have resulted in thickening the grass and ridding the land of parasitic growth. As a means of enriching meadow land, it has been conclusively proved that running poultry in considerable numbers during the autumn and winter is as good as a dressing of manure, whilst the stubbles not only provide food for fowls for some weeks in the autumn, but the land is also enriched by their presence.

These facts must convince all but the most sceptical of the important position the domestic hen should occupy upon the farm, and how much agriculturists are missing by neglecting to avail themselves of her assistance. They are facts that will bear any amount of scrutiny and that can be borne out by actual demonstration in many parts of the country, and as such they cannot be too widely known. They show up the possibilities of farm poultry-keeping in a rosy light, and the pity is that such hindrances as have already been enumerated should cast shadows upon it.

WHO'S WHO IN THE POULTRY WORLD.

MR. W. M. BELL.

EIGHT years is not a long time for the establishment of a sound reputation and the making of a financial success in the poultry world, and it says much for Mr. Bell's ability and enterprise that he has achieved both these objects. He started poultry-keeping in the autumn of 1901. The following year he took the farm at Ringwood, of which we published an account in our December issue, including a mixed stock of over thirty varieties of fowls, ducks, and turkeys, for the Ringwood premises had been run for utility, not for exhibition purposes, up to that time. Mr. Bell gradually reduced his stock until to-day he only has the three varieties of Orpingtons — Black Buff, and White — with which his name is so prominently associated in the show-pen.

He is a native of Melbourne, Australia, where he spent the first ten years of his life. Coming to England, he was sent to the Leys School, Cambridge, where he remained for seven years. On leaving there he took up engineering, going through a course at Faraday House Electrical College. Athletics attracted him, and in the season of 1899-1900 he gained his Surrey County Rugby Football cap. His rise to distinction in the Fancy has been meteoric. He won the Black Orpington Club's Young Bird Challenge Cup four years in succession and the Poultry Club's 30-guinea Cock Challenge Trophy twice in succession. He also captured the British Dairy Farmers' Gold Medal twice (1905 and 1907) and the Poultry Club's 10-guinea Cock Cup and Orpington Breed Cup eight times, the two latter trophies thus passing permanently into his possession. Few exhibitors have approached these records.

A life member and vice-president of the Poultry Club, he is also connected with the Black, White, Buff, and Variety Orpington Clubs in this country, while he is a member of the American Orpington Club and State honorary vice-president of that body for England.



MR. W. M. BELL.

MR. FRED - - PARTON.- - -

AS a lecturer on all matters of poultry-keeping and a judge of dead poultry and eggs at several of the leading agricultural shows, Mr. Parton is rightly esteemed a prominent authority by those best qualified to decide. From 1893 to 1900 he acted as assistant to Mr. Edward Brown, and during this period delivered lectures on poultry-keeping on behalf of the County Councils of Northumberland, Cumberland, Lancashire, Yorkshire, Lincolnshire, Bucks, Berks, Kent, and Hampshire. He also had charge of the practical work in poultry classes held at Ashford (Kent), Ipswich, Brigg (Lincs.), and Reading. In 1900 he was appointed to his present position of Lecturer in Aviculture to the Leeds University. In connection with this, the Yorkshire County Council have a farm, a consider-

able part of which is devoted to poultry, and this section is under Mr. Parton's superintendence.

His activities, however, are not confined to the Leeds University and district. He is examiner to the Lancashire County Council classes in Poultry Culture, and to the West of Scotland Agricultural College, Kilmarnock, where he holds the record so far as securing attendances is concerned—eight hundred having been the average attendance at a course of five lectures. For several years, it should be noted in conclusion, Mr. Parton visited Ireland, in connection with the poultry industry, for the Irish Board of Agriculture.



MR. F. W. PARTON.

MR. GRANT M. CURTIS.

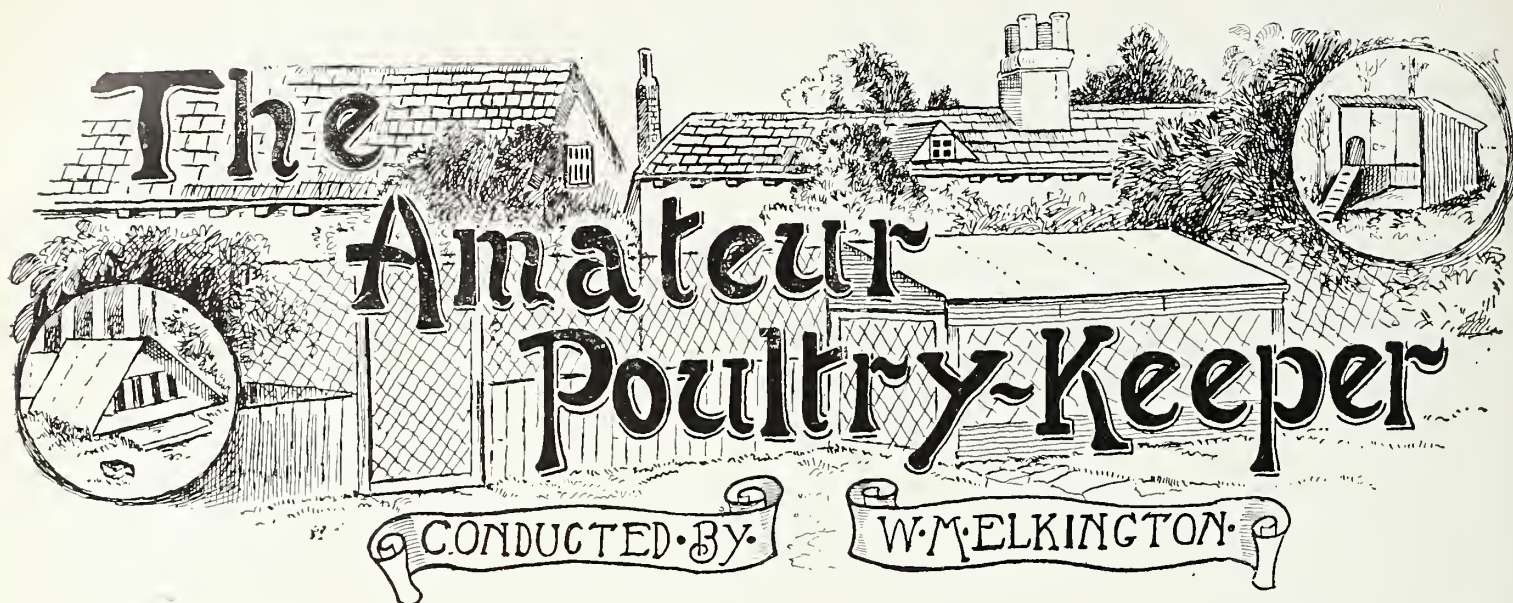
TO have attained the proud position of President of the American Poultry Association is a notable achievement. To have held that place for—we think—two years during a time of stress and difficulty, and to have left the Association stronger in numbers and influence, deserves recognition. From the lethargy of past days the A.P.A. was considerably awakened during Mr. Curtis's Presidency; in fact, it became positively lively at times, which was something, at all events, and the newly awakened zeal is generally acknowledged to be due to his energising influence and example. For he is a "live" man, a "hustler," to use Americanisms, and we cannot conceive any set of circumstances in which he would not only not be awake himself but would not keep others from somnolence. That there were plenty of critics and criticisms goes without question, but that is healthy. These do good, not harm. We have neither the desire nor the design to express judgment upon the policy adopted by Mr. Curtis, had we the knowledge of and

ability to deal with it. But that the A.P.A. has been a different body of late everyone will admit, and it is certain that those who attack it and its President got as good as they gave. It may be mentioned that Mr. Curtis had a large share in the revised American standard, which was published during his term of office.

Mr. Curtis has taken an interest in poultry for many years; first, in the Middle West, where he was induced to establish a poultry plant. As a journalist he was impelled to think out that side, and the result of these cogitations was the founding of the *Reliable Poultry Journal*, of which he is Editor-in-Chief, and which speedily forced itself into a prominent place by the vigour of its spirit and by the wide range of its information. To-day it is recognised as one of the leading poultry journals in America. Mr. Curtis, who is President of the Cyphers Incubator Company, has paid two visits to Europe, during which he came into contact with many of those who are interested in poultry questions. These visits were good for him and good for us. His geniality and hospitality, experienced by the Editor of the ILLUSTRATED POULTRY RECORD during his visit to America six years ago, and by others, his breezy optimism, were inspiring and exhilarating, and perhaps he learnt that we in England are not quite so slow and sleepy as might be thought if all stated by the Yellow Press of America was accepted as gospel. These international exchanges are beneficial in the extreme.



MR. GRANT M. CURTIS.



The Art of Feeding Poultry.

Every amateur should study the art of feeding, for that is the secret of successful poultry-keeping. I do not intend to suggest that the art of feeding consists of a knowledge of the analysis and proportionate feeding values of various foods. That knowledge is useful, and every poultry-keeper will find it to his advantage to study a good analysis, so that he may see for himself the character of the food he uses. But that is not all. The art of feeding is knowing how much to give, when to give it, and when to withhold it. It is not every amateur that keeps his fowls in a back-yard. Some are fortunate enough to have a large or unlimited grass range for their stock, and these are just as much in need of advice as those who have no better accommodation than a scratching-shed. A short time ago I went with an amateur to feed his stock that were running on a field. We took with us a pan of wheat and maize, and my host was proceeding religiously to throw down a handful to each bird, according to custom, when I pointed out that the birds did not require anything. Their crops were already bulging in a manner that suggested satiety, and it was pretty obvious that they had been round the sheep and cattle troughs and had made a good meal of seeds and turnips. This is only one case in point, but it shows that poultry-keepers must feed with their heads as well as with their hands, and study the requirements of their birds each day instead of adopting a fixed rule in feeding, whether the fowls actually require more or less.

Feeding in Confinement.

In a small run more food has to be provided, and more care taken, to avoid that undesirable condition which is the result of giving hens more food than is necessary to keep them in a state of activity. Beginners are very often puzzled to keep their fowls from idling about the whole day, as they will in a small run, unless

there is some strong incentive to activity. Now, the strongest incentive that can appeal to a hen is hunger, or shall we say keenness for food, and if poultry-keepers begin the day by giving their hens a heavy breakfast, the incentive is destroyed, and the birds will stand about contentedly until hunger reasserts itself, by which time, if the weather is cold, they will have become thoroughly chilled. This is the way to check egg-production. On the other hand, if you give just a small feed of hot soft stuff in the morning, and then throw down a little grain among some leaves or other loose litter, the birds will work for it, and will never become so sated as to spend the remainder of the day in idleness. My idea is that it is better to give three or four small feeds than two large ones during the day, for each feed ensures a certain amount of exercise, if the grain is scattered among litter, and exercise is absolutely necessary to maintain condition and productiveness in confined stock.

Economical Egg-Production.

Which class of fowls pay best for egg-production in a small run is a question that seriously affects the amateur, for I think many people who obtain fairly good results by keeping a few fowls for laying might do even better by selecting birds of a more suitable character for this particular purpose. Buff Orpingtons are such great favourites for general purposes that many people are encouraged to keep them in small runs, for which purpose, however, they are not sufficiently economical, and are too prone to broodiness and fattening up at the expense of eggs. The small egg-producer requires a fowl that costs comparatively little to keep, that has an active disposition, never goes broody, and lays plenty of eggs, and nothing fills the bill better than a Leghorn or an Ancona. A few years ago I should have also recommended the Minorca, and do still recommend it when a good utility strain is found; but for some reasons laying strains are not so numerous nowadays in Minorcas as in Leghorns and Anconas. What with household scraps

and the increased productiveness of modern stock, poultry-keeping on a small scale is a sound business proposition, and the other day a man told me that he made £5 profit last year from six hens. It sounds a good deal, and some of my readers may be incredulous. Perhaps some of those who have kept accounts will furnish particulars to show what may be done by keeping a few fowls in this way.

Covered Runs.

Many amateurs are only able to devote a small space to their fowls, and in such cases there can be no doubt that much better results can be obtained by covering in the run and turning it into a permanent scratching-shed. The initial cost may be a serious item to those of limited means, but it will be amply justified by the results, for the birds will keep in better condition and will lay more eggs. In an open run, and assuming that there is no covered accommodation except the house, fowls are entirely at the mercy of the weather. So long as it is dry, they can be made happy with plenty of loose scratching material; but when wet weather comes there is an end to exercise, and the place becomes little better than a mudbank. With the protection of a roof, the fowls are practically independent of the weather. Only give them plenty of clean litter to scratch among, and provide regular supplies of green food, grit, and shell, in addition to the ordinary food, and they will keep in fitter condition and lay more eggs than any that are kept in a small open run. I need hardly add that cleanliness is a very important matter. Litter must not be allowed to remain after it is 50 per cent. droppings, and I recommend peat moss, the best and most absorbent, or dried leaves, the cheapest of all litters. Two square yards of scratching-space is the minimum to be allowed to each bird, but the larger the run the better.

Distinguishing Sex in Chickens.

I have been asked what is the earliest age at which the sex can be distinguished. That depends entirely upon the variety. The comb is the most reliable general guide, and naturally it is much easier to pick out the cockerels, whose combs develop more quickly, in the large-combed breeds. An experienced fancier can, with very few exceptions, distinguish the sex of his chickens as soon as they are hatched, though an amateur might not be so successful. In the large single-combed breeds the combs of the cockerels are slightly larger and more upright in formation. Even in rose-combed breeds, like Wyandottes, one can generally pick out the cockerels when the chickens are a few hours old. The small single-combed breeds are more difficult to distinguish.

THE AMATEUR'S GUIDE FOR APRIL.

IT is now too late to set eggs of the heavy breeds, particularly Orpingtons, for winter-laying purposes. On paper it may appear that the pullets from eggs set now should begin to lay in November, allowing them a little

over six months to grow; but, in actual practice, these heavy birds do not always lay at that age unless they have been hatched early and have had all the best of the summer to aid them in development. The late-hatched birds encounter changeable, and often cold, weather in the autumn just when they are making up into full plumage, and that has the effect of checking them, with the result that from eggs set now very few birds would lay before Christmas. Some of the utility strains of Wyandottes and Buff Rocks, which are smaller and develop more quickly than the exhibition strains, might be ready to lay in November with good rearing and management, though we should prefer to devote our attention entirely to the smaller breeds.

April is perhaps the best month of all for hatching Leghorns, Anconas, and other varieties of that class. Eggs should be set at once, and may be put down until the end of the month with reasonable hopes of getting winter layers. Duck eggs should also be set as early as possible, and possibly a smaller number than usual will be hatched this month owing to the scarcity of early eggs of the large table breeds. Turkey and goose eggs should also be set this month, but we can only recommend stock of this class to those who have unlimited ranges of grass land. It is impossible to keep geese profitably in confinement, and very difficult to keep turkeys.

Of the chickens already hatched many should now be fit to take care of themselves. There is no advantage in keeping chickens coddled in coops and brooders when they are well feathered, provided the weather is not unreasonably cold, and the youngsters will have a better chance to develop if they are put out into more roomy quarters, such as a small, well-ventilated house, or one of those useful appliances known as a cockerel pen, in which plenty of loose litter should be provided for the birds to sleep upon.

It is not every amateur who can put his chickens out upon fresh land, but those who can should do so, and everyone should reserve a pen or a piece of ground for young stock. It is useless trying to bring them up in a small run along with adults; for, even if they are fed by themselves, they will not have a fair chance to grow and develop. Many people rear chickens on a lawn, and there is no reason why this should not be done if the coops are moved every day. I have found that this improves the grass wonderfully, and the ground is so fresh that the chickens always thrive upon it. In any case, avoid rearing the later chickens upon the same spots as the earlier ones, for the ground will be fouled. Late rearing is always complicated when there has been an outbreak of disease among the earlier hatches, and safety can only be assured by taking the coops right away.

The prices of eggs for setting and of day-old chickens are generally reduced this month, so that amateurs can usually buy eggs for about half of what they cost last month. It is just as well to remember, however, that the exhibition strains, being larger, take longer to mature

than the utility strains, so that, except in the case of the smaller breeds, it may be a difficult matter to get birds hatched from eggs set this month fit for the shows before the end of the autumn. They may, however, come in useful for next breeding season, if they are well reared. On the whole, day-old chickens are a better investment just at the present time, because by buying them instead of eggs you will save three weeks, and those three weeks may make all the difference between success and failure in laying next winter. Before buying chickens, get a hen that has been sitting for some days and is quite quiet, and put the chickens under her one by one. If they arrive at night, they may be left in the nest till next morning; if during the day, they may be left under the hen in the nest for an hour and then be moved to a coop and fed.

If the weather turns warm during the month maize may be discontinued, even for farm stock, and oats and wheat will be found the best staple diet, so far as hard corn is concerned. Soft food may still be given in the morning, and both breeding stock and young growing birds require meat in some shape or form. Young grass should soon supply plenty of green food for

fowls at liberty, and a little may be cut for confined stock where garden produce is scarce.

The egg-preserving season will soon be here, for the price of eggs is now rapidly falling. Many amateurs and householders preserve eggs when they are cheap, but we would warn them against purchasing their supplies from unknown sources. To buy eggs from a shop and put them into water-glass is merely courting disaster, for perfect freshness is absolutely essential. The best plan is to contract with a reliable farmer to supply a number of eggs not more than three days old, and at the same time it will be desirable to point out to him the purpose for which they are required, and request him to collect the eggs two or three times a day. The reason is that broody hens are in the habit of occupying the nests all day, and if new-laid eggs remain under them even for eight hours incubation may have commenced, and there may be sufficient life in the eggs to decompose, which the preservative will not prevent.

A BACK-YARD HOUSE AND RUN.

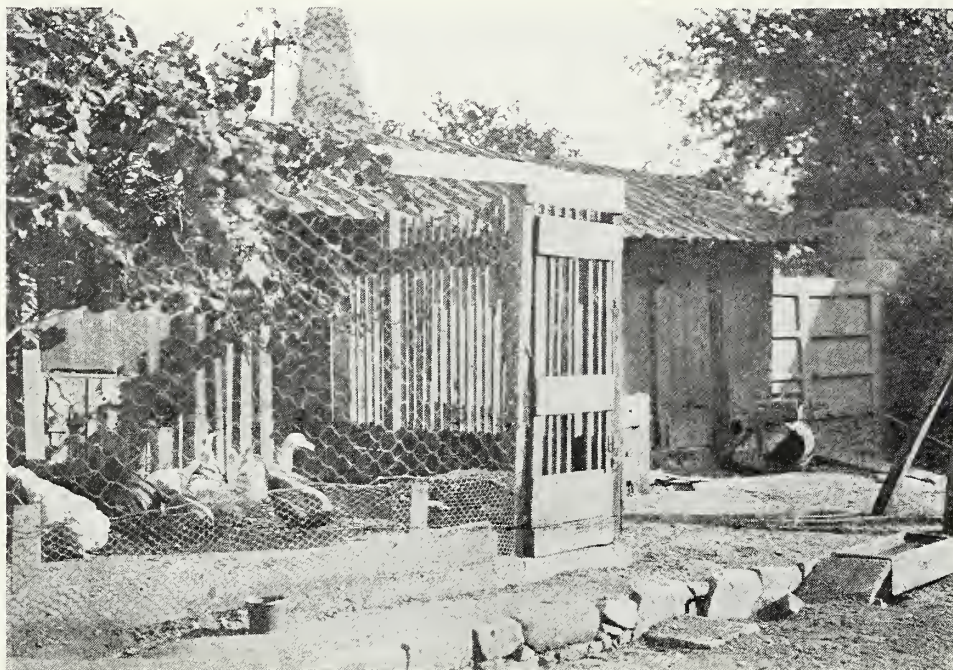
COST OF MATERIALS.

	£	s.	d.
250ft. 2in. by 2in. at 4s. 6d. per 100	...	0	11 3
2 squares $\frac{3}{4}$ in. matching at 12s. 6d....	...	1	5 0
$1\frac{1}{2}$ squares $\frac{1}{2}$ in. matching at 10s.	...	0	15 0
9ft. run 3in. by 3in. and 11in. by $\frac{3}{4}$ in.	...	0	2 6
Wire netting for front and floor	...	0	8 6
17ft. guttering, with pipe, ends, bends, &c.	...	0	7 6
9 corrugated iron sheets, 8ft. long, at 3s.	...	1	7 0
Nails, screws, hinges, blinds, &c.	...	0	6 0
Paint, limewash, &c....	...	0	3 6
Tar, pitch, gravel, &c., for floor	...	0	8 9
		£5	15 0

FLOOR to be 1ft. larger each way and composed of 1ft. deep old rubble and builders' refuse, beaten down and

covered with fine-mesh wire netting, and thick layer of tar, pitch, coarse gravel, and lime to make asphalt.

FRAMING made of 2in. by 2in. quartering, halved together at joints, as shown at "a," and made in five sections—front, back, two ends, and partition. Top of end sections halved, as shown at "c." End sections secured to front and back framing, as shown at "d." Door



A HUMBLE AMATEUR'S YARD.

[Copyright.]

framed up with mortise and tenon joint, as shown at "b."

FRONT.—Roosting-house boarded up 2ft. and provided with sliding shutter in front of netting, as shown in detail at "g." Run to be boarded up 1ft. 6in., 2in. above top of rail "f," so that netting may be neatly secured inside, as shown at "f." Canvas blinds to be fitted in front of netting, details shown at "e."

ENDS.—Boarded right up, one end to be fitted with outside nest-boxes, as shown.

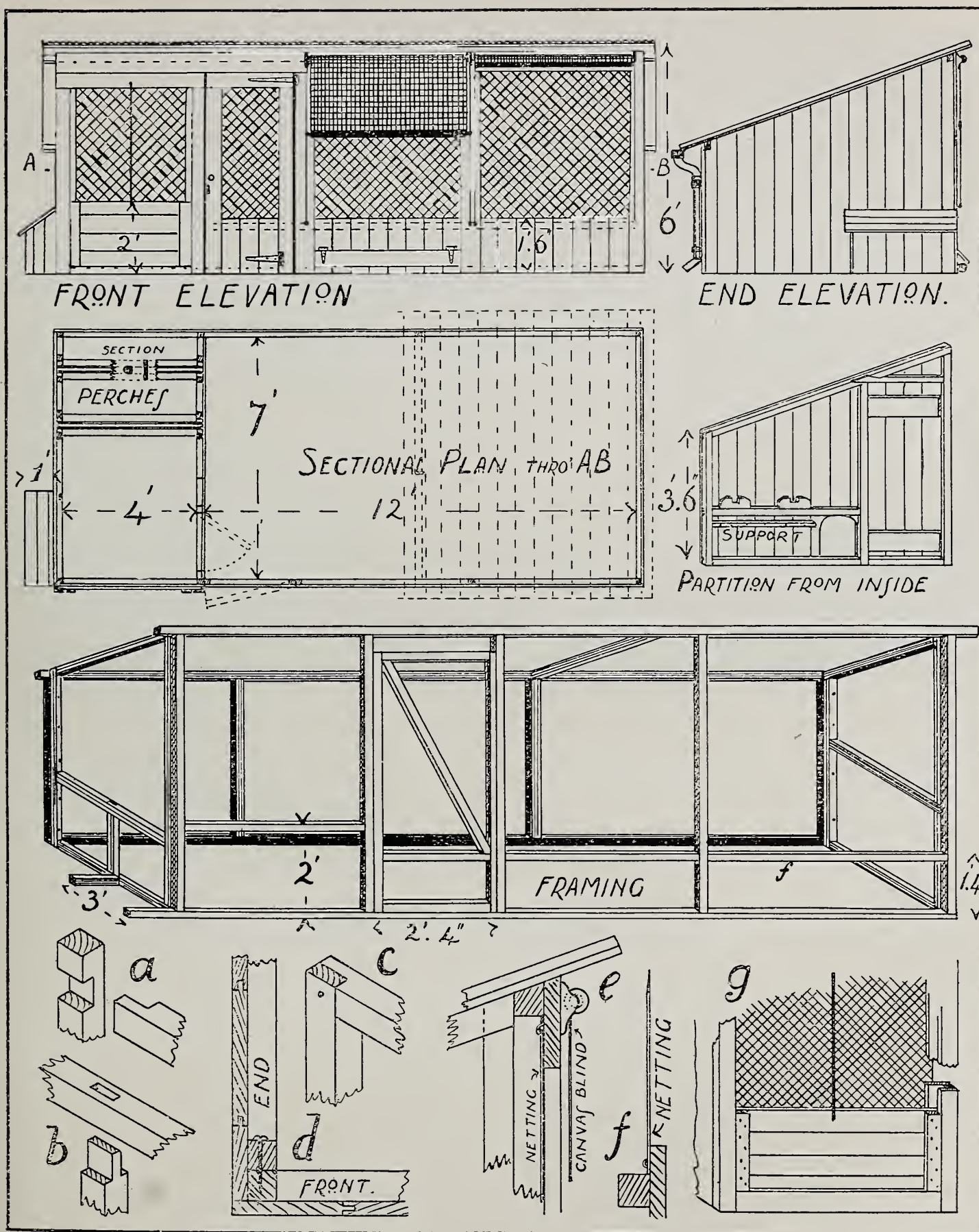
PARTITION.—Boarded up, door made of $\frac{3}{4}$ in. boards with battens of same wood. Inlet for fowls provided as shown.

BACK.—Boarded right up, boards nailed on perpendicularly.

PERCHES, resting in supports secured to top of rails as shown, and made of 3in. by 3in. stuff, rounded on top.

DROPPING BOARDS, 11in. by $\frac{3}{4}$ in., resting on supports nailed under rails, should be easily removed for cleaning.

ROOF covered with $\frac{1}{2}$ in. matching, as shown by dotted lines, and corrugated iron sheets, or with $\frac{3}{4}$ in. matching and felt thickly covered with tar and pitch.



A BACK-YARD HOUSE AND RUN.

[Copyright.]



POULTRY CULTURE IN CHINA.

BY MRS. A. G. MOORE.

POULTRY Culture in the Far East is still in its infancy. Nowhere is this more evident than in China, where the methods of breeding and transportation are the most crude. No effort is made by the Chinese at poultry-farming on a large scale, and the specialist is conspicuous by his absence. It is surprising to see this, for China is a country where chickens form one of the principal articles of food, and are always in great demand. Everywhere in China we find the same conditions.

It is difficult to define the cause of this state of affairs. Possibly it is because of the many difficulties experienced by those who have had the courage to make the attempt; difficulties such as contagious diseases (which through lack of knowledge often carry off an entire flock in a village in twenty-four hours), lack of training in poultry culture, the want of properly balanced food, the climate, &c.

Although there are no large breeders, nearly every house or hovel has its brood of chickens running around the door, their runs being the narrow dirty streets, and, more often, the rubbish heap which is at every open space. It is amusing to watch the chickens, each little brood having a different dab of colour on their backs to distinguish them from their neighbours. Often, what with chickens, pigs, dogs, and babies, it is difficult to get through the streets of the village. The home of the chickens is a split bamboo basket, which at night is put in some corner of the house, most frequently under the bed. More than once, when travelling in the interior, it has been my privilege (?) to sleep with the chickens and pigs under my bed. But there are a few more fortunate broods—that, for instance, of the old “stone-breaker,” invariably a woman, who takes her little flock with her and lets them run by the side of the road; of the old

man or woman who has the tea-stall by the road side, who does the same; of the farmer, who carries a basketful of chickens with him to the fields and gives them the run of them; and of the vegetable gardener, who keeps the little ones to preserve his crops by feeding on the insects and bugs which breed on the young vegetables.

The common practice in South China, and I think I am safe in saying throughout China, is, roughly, as follows. Almost every home in the country villages, and frequently in the big towns, has one or two broods of chickens. As these grow up, new ones are hatched. When the first brood reaches full size, it is sold to a man who periodically visits the place for that purpose. As he buys them, he puts them into his baskets, and when he has visited the whole of the village, he puts a basket on each end of his bamboo, and trots off to the next village. When he has all he can carry, he goes to the nearest market town, and sells them to some wholesale dealer for a small profit. The wholesale dealer sends them to the cities or large ports, and sells to the retailer, who disposes of them to those who want them. Hence all poultry passes through at least four hands before it reaches the consumer, who thus has to pay the profits on all.

Sprouted Barley.

We quote from “Poultry Secrets,” published by the *Farm Journal* of Philadelphia, as to the experience of a Connecticut poultry-raiser, who says:

To get green poultry feed barley is the best grain. Cover as much as you need with very warm water, and let it remain for twenty-four hours. Then draw off the water, empty the grain into a shallow box having holes in the bottom, keep it quite moist with warm water, and turn frequently so it will sprout evenly. Set in a sunny or warm place, covering it with sacks, and in a few days it will germinate and start growing. Then, when healthy green sprouts show, use as feed. Have a number of boxes in the work to keep a supply.

FOUR AMERICAN BREEDS.

BY THOMAS F. MCGREW.

THERE is so marked a difference between the Brahmas, Plymouth Rocks, Wyandottes, and Leghorns, as bred in England and in America, that the

America, the type having been largely destroyed from the use of the English Cochins having the stiff hock joints.

The Brahmas in England have been ruined as a utility fowl in the same manner as the Cochin has been. Too much feather and too little breast meat has removed



AMERICAN TYPE OF LIGHT BRAHMAS.

The Egg-Producing Type of Exhibition Quality.

uninformed are led to imagine them to be different breeds. This difference should not exist; all of them were made in America, each was made for a purpose, and the altering of the breed characteristics detracts from their utility value.

Many years ago, when I was in correspondence with the late Lewis Wright, the question of the Brahma and the Cochin of America and England was thoroughly discussed. Having been one of the earliest breeders of Cochin fowls in America, I learned years ago that it was almost suicidal to introduce English Cochins into the American breed. Results have proved that I was correct, from the fact that to-day, with a few exceptions, there are no successful breeders of Cochins in

them from the list of utility fowls. Formerly the Brahmas were most favourably thought of in this country as

market poultry and egg-producing fowls. Within the last six months the writer was told by those who grow the finest poultry in America that light Brahmas would have the preference for market poultry if they could be obtained of the proper type, but market poultrymen could not afford to feed for feathers when producing soft roasters for market. The photograph accompanying this article was made from a pen of most excellent light Brahmas of the proper type. This is the style grown for egg-production and for market poultry; the only difference between these



AMERICAN TYPE OF PLYMOUTH ROCK.

and those of extremely fine exhibition quality is that the latter have a little more feather and heavier bodies. The striping of the neck and the lacing of the tail coverts are markings of vital importance in exhibition Brahmas. The dark Brahmas have the same breed characteristics, and they must be exquisite in colour and markings.

Plymouth Rocks.

The American type of barred Plymouth Rocks, as bred for exhibition purposes, differs so much in shape, colour, and marking from those we have seen, that come from England, as to lead us to believe that in England the Plymouth Rocks are cuckoo - coloured Cochins without feathers on the shanks. We in America do not permit in the least the Cochin type in Plymouth Rocks. The type demanded in America describes a breed that is far less bulky in form than are the Orping-

almost ideal. They are the true Plymouth Rock shape and perfect in colour of plumage.

Wyandottes.

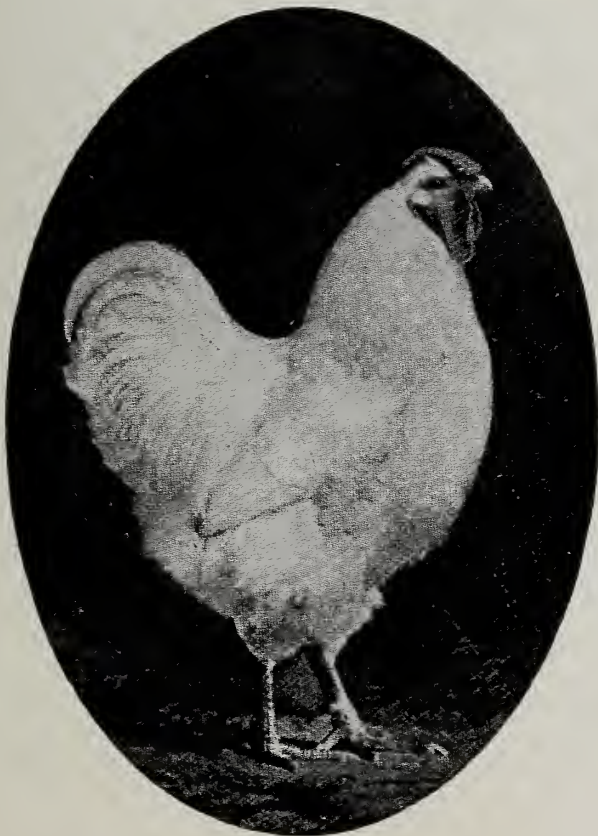
When Mr. John Wharton visited this country several years ago, we had the pleasure of directing his wanderings among the Wyandotte breeders. He said he found but three or four Silver-Pencilled and Partridge Wyandottes that would be of value in his breeding-yards; that the colour of the plumage of the American-bred Wyandottes of these varieties was entirely too dark for the English fancy. Since that time there have come from England to the American shows a few Partridge Wyandottes, none of which to my knowledge has won a prize in the largest shows—the judges term them washed out, or of a brick-dust colour. The colour of the exhibition Partridge Wyandotte female in this country is a



AMERICAN WHITE PLYMOUTH ROCKS. U. R. FISHEL.

tons that come from England to the New York shows. The illustration of the barred Plymouth Rock female is made from a photograph taken of a winner of reputation. This hen won as a pullet and also as a hen in one of the largest shows in America. She is of superb size, shape, colour, and marking. An exhibition barred Plymouth Rock must have the colour, the clean-cut markings, the parallel lines drawn distinct and fine without the darker shade encroaching upon the light, and the barring of each feather to the skin is of vital importance. A photograph of one of the breeding-pens of White Plymouth Rocks owned in America is shown in contrast with the prize-winning barred Plymouth Rock hen. These, like the Brahmas, are shown in the breeding-yards as found during the early summer months. The style of the male and of the female in this picture is

very dark mahogany, pencilled with black or brown. The greatest difference between the American and the English Wyandottes of these varieties is the colour of the shanks. In laced Wyandottes the English breeders have excelled in colour-marking and the open lacing of the plumage. None of the English specimens sent here have equalled the home-bred birds in Wyandotte type. Undoubtedly the American Plymouth Rocks and Wyandottes combine to the greatest extent exhibition, egg-producing, and market-poultry qualities. A recent calculation shows that fully one-half of all our market poultry sold in this country is Plymouth Rock, the remainder Wyandottes and other breeds. When one stops to consider that this country has grown and sold through commission merchants over six hundred million dollars' worth of poultry products of all kinds during

**AMERICAN WHITE WYANDOTTE PULLET.***[Owen Farms.]***AMERICAN WHITE WYANDOTTE COCKEREL.***[Owen Farms.]*

the past year, your readers will understand why so much stress is laid upon the egg-producing and market-poultry qualities of the Brahma, the Plymouth Rock, and the Wyandotte.

Leghorns.

The first White Leghorns that came to the United States had red ear-lobes, white shanks and beak, and very light-coloured skin ; they might have been Minorcas. The fanciers of America have produced the finest quality of yellow skin and meat. Writers have claimed that the corn feed in this country influences the colour of the skin. This has some influence, but when subsequent importations of Leghorns were made, those with the lemon-colour shanks were preferred, selected, and bred from. The exhibition Leghorn of America is

**AMERICAN BROWN LEGHORN COCKEREL.**

(Very bad in comb, otherwise a good specimen of the egg-producing exhibition type.)

thoroughly well illustrated by the two photographs, one a Brown Leghorn male and the other a White Leghorn female. The latter has been retouched to bring out to the fullest extent the type demanded in the show-pen for pure White Leghorns (the same type is demanded in all Leghorns). This pullet has beautiful head points and comb ; the back and tail are almost perfect, and the general contour of the hen describes the exhibition Leghorn in America.

Outside and away from the exhibition display there is found on our poultry farms, where large numbers of hens

are kept for egg-production, the same type in thousands of American hens. A recent visit was paid to the Rancocas Poultry Farm, Brown's Mills in the Pines, New Jersey, where we saw 2,400 yearling hens and 3,000 pullets kept in flocks of 500 each, and all White Leghorns. In this lot were many hundreds that would be fit to come into the exhibition-pen with a reasonable prospect of winning. These hens are kept for producing white-shelled eggs for the New York market. During the latter part of November and the first three weeks of December eggs produced by these hens sold in the New York market, wholesale in crates containing thirty dozen each, at from 52 cents to 58 cents per dozen, and the hens were producing remarkably well for this season of the year.

The houses in which the hens are kept are 100ft. long and 14ft. wide. There are eight windows in the front of the house, each window containing nineteen panes of glass, each pane being 8in. by 10in. Between each glass window is an opening 2½ft. wide by 4ft. long, that is covered with heavy unbleached muslin. The 500 hens roost in the rear of the building. Each building is located in the centre of a three-acre lot that is shaded with oak and pine trees. At seven o'clock in the morning, when the thermometer was 16deg. outside, the interior of the house was comfortable. So far this winter not a comb has been frosted inside of the houses, nor has there been a sick hen in the entire lot.

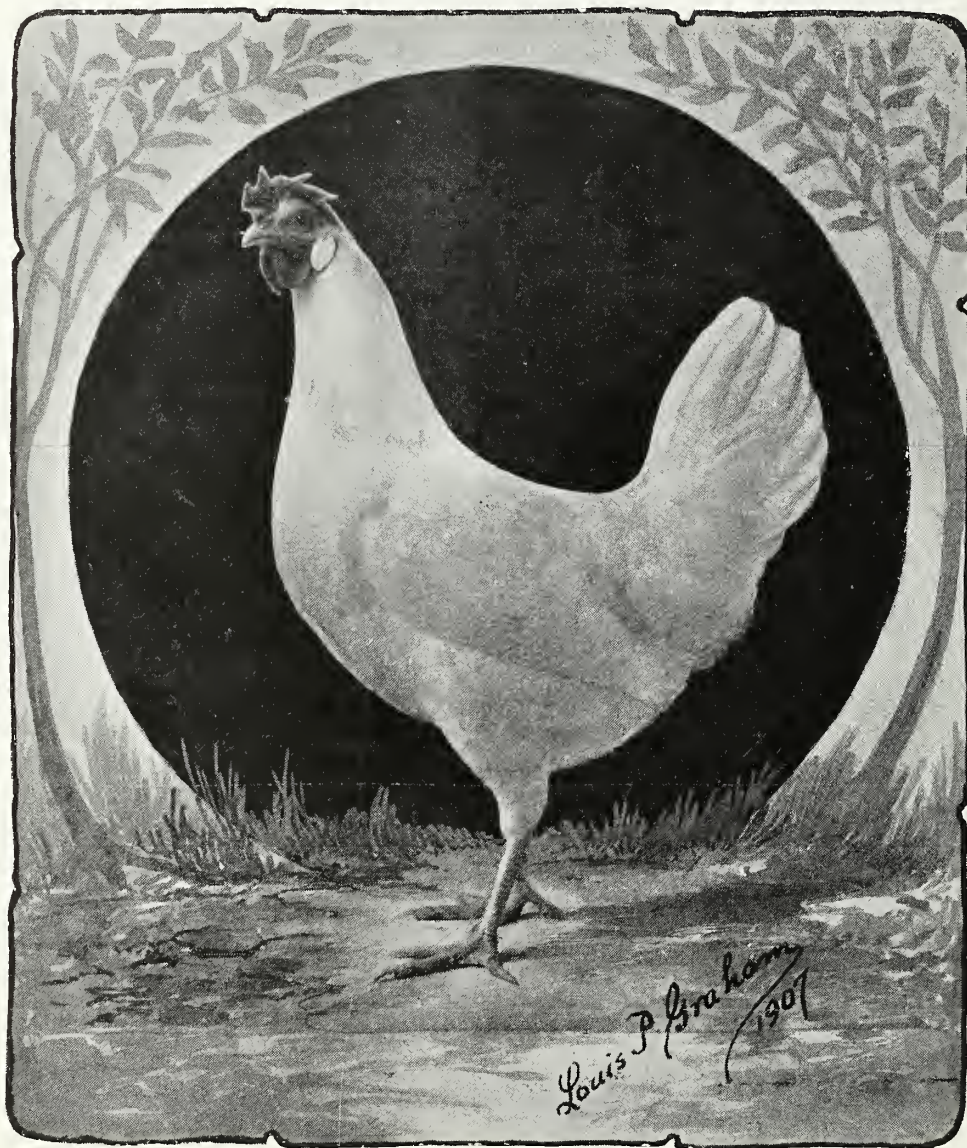
An English breeder brought to this country several years ago a pen of English-grown White Leghorns. These were purchased by one of the most successful breeders of Leghorns in America. A comparison was made as to the egg-producing qualities of the two strains. The American-bred Leghorns laid double the number of eggs that were laid by the English-bred birds. The chicks grown from the English-bred birds were one-third larger than the American-bred chicks; the English chicks were no better layers than their parents, and after three generations the part-bred English did not equal in quality the pure American breed. These facts, with illustrations, will convey to your readers the utility value and the exceptional excellence of the American hen.

DEVELOPMENT OF EGG-PRODUCTION.

BY LOUIS VANDER-SNICKT, of "*Chasse et Pêche*."

WHEN laying competitions were first introduced for hens or pullets, I wrote that this form of sport had no interest for Belgian poultry-keepers. If it had been beneficial the Flemish people would have practised the system centuries ago, continuing until the present time. The fact is they had found something better.

In the report of the Maine Agricultural Experiment Station (Vol. I., page 6, October, 1908) it is stated that



AMERICAN WHITE LEGHORN PULLET.

after nine years' breeding out of the hens that have produced the largest number of eggs the amount of variation in regard to egg-production is substantially the same as it was at the beginning. The annual average number of eggs produced in 1899-1900 was 136, rising to 155 in 1901-2, and falling to 113 in 1905-7. "We, and all stock and plant breeders also, have believed that

heredity is seen in economic qualities as well as external characters. If that is not so, then all our theories of breeding will have to be revised," was the comment of the ILLUSTRATED POULTRY RECORD on the above report.

I should like to be permitted to say that when the interior organs of a hen are overworked—for instance, if they are stimulated until they produce 250 eggs per annum—these organs naturally are weakened, and that weakness becomes hereditary. If the eggs laid by a 250-egg hen are incubated they produce pullets with enfeebled ovaries. But all the eggs will not produce pullets; from a portion cockerels will come. The mating of these pullets with weakened organs with cockerels in the same condition cannot make for improvement of the laying quality. In order to produce a good-laying pullet it is necessary to mate a hen which is a good layer, but with strong and active organs, to a cock also good in these respects.

For years the breeders of Barbu Nains have known what to do. They say: Associate the pullet that proved the most precocious in laying her first egg with the cockerel that crowed earliest, and you will secure a lasting strain of the best layers. If laying competitions are instituted, and at the same time crowing matches are not employed to test the cockerels, there must certainly follow what has taken place in America. Breeders generally will accept as a rule that, if they desire strong progeny, they must mate a vigorous hen with a strong, healthy male. But theory and practice do not always agree.

Fanciers imagine that they are improving laying breeds, such as Leghorns, Minorcas, Orpingtons, and others, by increasing the size of body. A bigger laying hen will not produce more and larger eggs, but will want more food. New breeds may justly be recommended for their utility qualities, but these qualities diminish each generation, until after a few years enthusiastic breeders have to say that they do not keep them for their laying properties, but for their own pleasure, for the sake of science or of beauty. The decrease in the number of eggs produced should not, however, be attributed to the hen. A long row of large, strong hens or pullets, all of the same breed, must be admired in a poultry show, and a corresponding row of beautiful cocks and cockerels larger than the hens must increase that admiration. To secure that the cockerels shall be larger than the hens, the most intelligent breeders separate them as early as possible from the pullets. Kept under these conditions they do not fight, and one will not often hear a provoking crow. An excellent plan is to place with them a strong old cock, who will interfere as soon as a battle is imminent. They thus remain quiet and continue to grow larger. To illustrate this point, it may be mentioned that fish breeders place in their breeding ponds one big female carp with two large male carps, the latter five years old and weighing six or seven pounds. A third male may be added of the same age, but only weighing two pounds, because he has had to pass

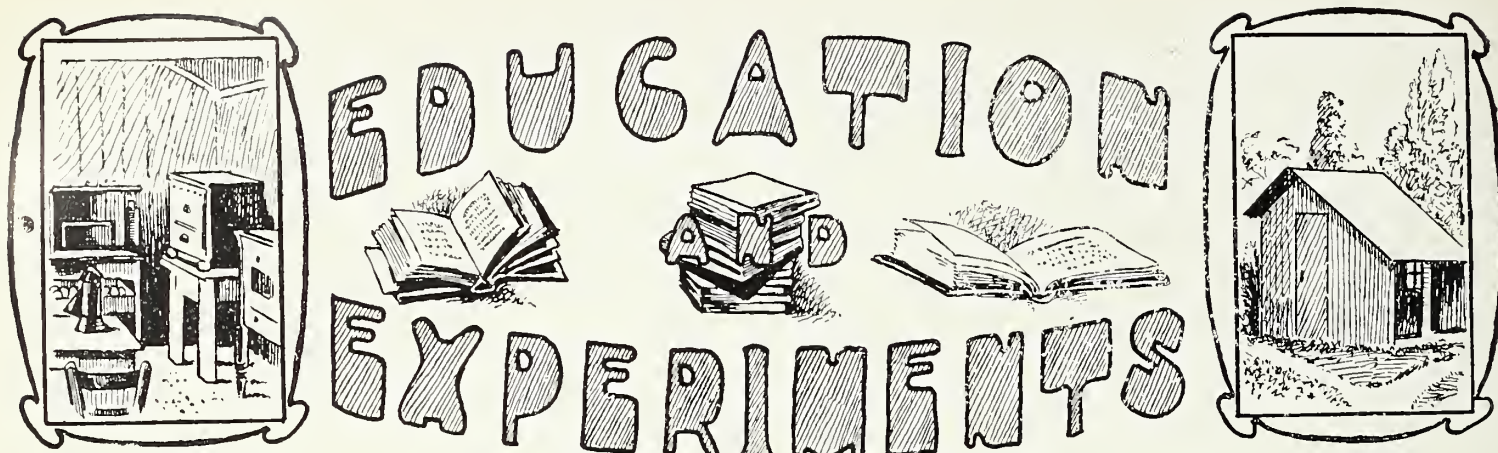
through a keen struggle for life. This smaller one will excite the large carps. The giant rabbit breeders of Ghent have learnt to use, if out of their best and largest stock, a small male, who, as soon as he is three or four months old, attacks all the others, demolishing the boxes in which they try to keep him; in fact, is so bold and turbulent that he finds no time for growing. He is kept for strengthening and enlarging the breed.

Belgian farm wives select the best laying pullets and choose for incubation the best formed eggs that are not too large in size. As soon as the chicks hatched from them are sufficiently strong, full liberty is given. By the time the cockerels are three months old they will fight to such an extent that it will be necessary to caponise or send them to market. Before that time, however, some will be noticeable by the size and redness of their combs, and by their propensity for attacking the hens. These are selected as "crowing cocks." She does not care if their mother laid 100 or 200 eggs—they have improved themselves, and that is sufficient. A large, inactive, plump cockerel will never win at a cock-crowing match.

Sometimes I have visited farms where they had 150 or 200 laying hens with the object of selecting specimens for exhibition. It was not difficult to find half a dozen large and heavy hens out of which winners could be bred after two or three generations. But, the cocks! The largest had reddish or pure red ear-lobes. Those with good white ear-lobes and other characteristics of the breed were so small that no judge would have looked at them. They were evidently the cockerels who had proved themselves as *fore-crowers*, and their smaller size was due to their precocity.

When desiring to improve an egg-producing breed, the most precocious cockerels should be selected, small in size of body because their proclivity for reproduction has manifested itself before the end of their growing period. It is probable that, because the fancy selects in an opposite direction, nearly all breeds which have received the attention of exhibition breeders have the reputation of losing much of their laying qualities.

A final point is that organic weakness in a laying hen manifests itself in different ways, as can be observed in the old Braekel (Campine in England). When these hens are laying too often or producing too big eggs, the distended oviduct is unable to contract again sufficiently before another egg presents itself. The result is that the oviduct protrudes, and the hen must be killed immediately. Thus it would be that a farmer would lose in the second year all his best hens, if the exaggerated laying propensity was not compensated by use of vigorous, lively, but smaller "crowing cocks." It happens, also, that when a hen lays two eggs the same day one of the eggs has no shell, for the glands are able to produce sufficient chalk for one but not for two eggs. This weakens the female organs, and has also an equal influence on the organs of the male birds.



Chick-Feeding Experiments.

At the Pennsylvania Agricultural Experiment Station, State College, Pa., Mr. Geo. C. Watson has been carrying out some experiments designed to throw light on the growth of chicks of different classes and breeds. We quote the "Conclusions" which summarise the tests :

1. Large breeds in general eat more than small ones during the growing period.
2. Early-hatched chicks grow faster than late-hatched ones. April 1 seems to be a desirable time for hatching in this latitude.
3. The amount of feed required to produce a pound of gain increases as the chicks approach maturity.
4. Between the ages of six and thirteen weeks it required from four to four and three-quarter pounds of feed to produce a pound of gain. Between the ages of thirteen and twenty-six weeks it required from four and three-quarter to five and three-quarter pounds of feed to produce a pound of gain.
5. Chicks forced when young do not make as rapid growth as they approach maturity as those fed a more moderate ration.
6. Chicks weighing less than one pound seem to grow faster on a wet mash ; those weighing a pound and a half or more do best on dry feed.
7. The loss among chicks on wet mash was much greater than among those on dry feed, even when weighing less than one pound each.
8. The slaughter tests indicate that the American breeds dress out better than either the Mediterranean or Asiatic breeds, and that in general pullets dress out better than cockerels. When rather small, weighing less than three and a half pounds live weight, the cockerels of the Mediterranean and Asiatic breeds seem to dress out better than the pullets.
9. Forced moulting seemed to first depress, then increase slightly, egg-production, but the net results at the end of three months were against forced moulting.
10. Eggs set about April 1 seemed to produce the highest per cent. of chicks.
11. The eggs of the different breeds in order of their weight were as follow : Black Minorca, Light Brahma, Barred Rock, White Leghorn, White Wyandotte, Rhode Island Red, White-Crested Black Polish, Buff Cochins. A great deal may depend upon the strain, as it is known that some hens of any breed normally lay larger eggs than others of the same breed.
12. The weight of chicks when hatched does not seem to be in direct proportion to weight of eggs.

THE BIOLOGY OF POULTRY-KEEPING.

"THE function of the Experiment Station is to experiment, and by experimentation to learn, in so far as may be, facts and principles which will help to advance the theory and practice of agriculture." With this laudable object in view, the University of Maine (Orono, Maine) has organised and is carrying on a large number of tests relative to agriculture, and we are pleased to note, from the circular to hand, that poultry-keeping is to receive a large share of the attention of the staff. That there is a great opportunity for those possessing the necessary biological knowledge in the field of poultry husbandry is undoubted, and the results of the experiments which are being followed should prove valuable.

Three general lines of investigation have been laid down—namely, (1) genetics, (2) physiology of reproduction in the domestic fowl, and (3) the laws of growth.

1. The work in *genetics* includes the following :

- (a) Studies along Mendelian lines, with poultry as representing the animal side. Without entering into details of the experiments, it may be stated that "in general the standpoint of the work is to make an *intensive* study of the behaviour of a few unit characters in inheritance, using large numbers of individuals."
- (b) The influence of selection upon the inherited characters of organisms. Egg-production is the character which is being chiefly studied in this connection.
- (c) Quantitative studies of the method and degree of inheritance of various characters in poultry.

2. The second line of work mentioned above as occupying the attention of the department is the *physiology of reproduction in the domestic fowl*. The close relation of this problem to the problems arising when poultry is used as material for the study of genetics is so obvious as not to need discussion. Particularly is it important that this problem be investigated when one of the principal characters dealt with in the study of inheritance in poultry is egg-production. Egg-production is a part of the process of reproduction in the fowl, and it is obvious that before one can get at fundamental principles regarding breeding fowls for egg-production one must understand the physiology of the process itself. The following skeleton outline (taken from a paper

now in press) gives some notion of the scope of the investigation which is being prosecuted.

- I. Physiology of egg-production within the individual.
 - (a) Processes occurring in or relating to the ovary.
 1. The development of the egg up to the time of ovulation. Resorption of the yolk.
 2. Ovulation proper. The rupture of the follicle.
 3. Fecundity.
 - (b) Processes occurring in the oviduct.
 1. Movement of the egg to the outside.
 2. Formation of albumen.
 3. Formation of the several egg membranes.
 4. Formation and determination of the shape and colour of the shell of the egg.
 - (c) Intra-individual variation and correlations in regard to the points enumerated under *a* and *b*. Homotyposis.
 - (d) Behaviour in its relation to egg-production and reproduction in general.
 1. Mating instincts and habits.
 2. Brooding instincts and habits.
- II. Physiology of egg-production within the race.
 - (a) Variation in egg-production.
 1. Intra-racial } in regard to each of the points
 2. Inter-racial } enumerated under I. above.
 3. Mutation.
 4. Seasonal distribution of egg-production.
 - (b) Inheritance of egg-producing ability. Considered with reference to each of the points enumerated under I. above.
 1. In pure lines.
 2. Under hybridisation.
 - (c) Evolution of egg-producing ability.
 1. Influence of selection.
 2. Egg-production in the wild progenitors of domestic poultry.
 3. Fixation of egg-producing ability as a racial character.
- III. The influence of environmental factors (in the broadest sense) on the processes enumerated above.
 1. Nutrition.
 2. Housing.
 3. Meteorological factors.
 4. Drugs.
 5. Other environmental agents.
- IV. The relation of internal factors to, and their influence upon, the processes enumerated under I. and II.
- V. Pathological and teratological cases relating to egg-production.

This outline, while not as extensive or complete as it might be made, gives a fairly comprehensive view of the general scope of the problem.

3. It is believed by the station biologist that before one can proceed far with the analysis of the more intricate problems of genetics it is necessary to know something of the *laws of growth* of the organisms which are being used as material for the study of inheritance. In accordance with this belief experimental studies on the growth of the maize plant are being prosecuted, and similar studies on poultry are to be undertaken shortly. During the present year a detailed study of the growth of the maize plant has been made with particular reference to the following factors: (a) Gametic constitution of the growing individual; (b) Intra-individual variation; (c) Racial variation.

A BIOLOGIST AND INCUBATION.

WE have always regretted in the past that there were so few highly trained scientific specialists who were able and willing to devote their time and energies to the elucidation of some of the puzzles in the poultry world, but we are pleased to notice that every year more investigators, possessing scientific knowledge, are taking up this subject, though it must be conceded that this is more the case in Canada and the States than in this country. One of the latest to enter the ranks of poultry investigators is Mr. Albert C. Eycleshymer, of the Department of Anatomy of St. Louis University, and the results of his experiments and tests are given in No. 6 of Volume XII. of the *Biological Bulletin*. The object of the investigator was to solve certain problems arising from the practice of natural and artificial incubation, these regarding the position of the eggs, cooling the eggs, ventilation of eggs, and moisture of eggs.

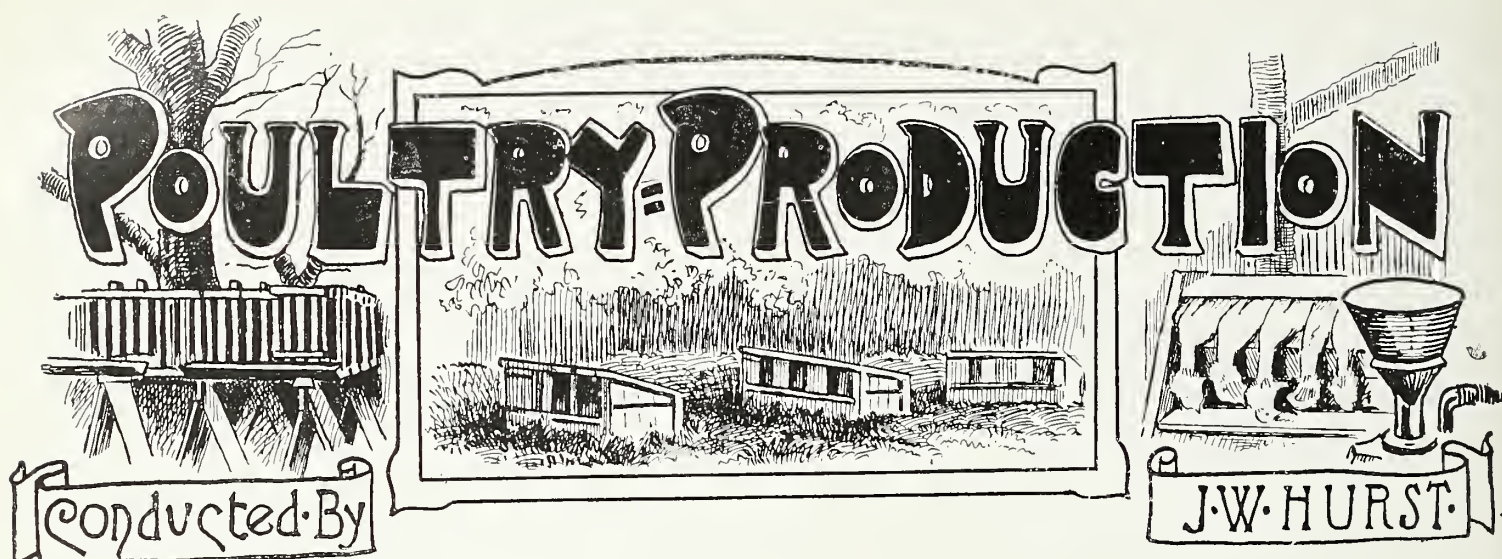
In the first place two nests of eggs were taken, one of these being flat, the other having a concave bottom. In the flat nest the eggs lay more or less horizontal, and from the twelve eggs in this nest eleven hatched, 91.7 per cent, and in the concave nest, the eggs lying at an angle varying from 90deg. to nothing, 86.6 per cent. hatched. The conclusion arrived at by these results is "that the position of the eggs is a factor of but very little importance in natural incubation."

In order to determine the influence of position in artificial incubation a number of tests were made, and at the same time certain tests were made regarding ventilation. As a result of these Mr. Eycleshymer states: "These experiments show that when the egg chamber is furnished with an abundance of fresh air, the position of the eggs is not of great importance. With insufficient ventilation the eggs with the large end highest have a better supply of oxygen from the air, and consequently hatch better."

It appears from the results of experiments regarding the turning of the eggs when undergoing hatching by the artificial means that "frequent turning is necessary, and that eggs not turned during the early days of incubation grow fast to the membrane of the shell." From observations made of eggs under the sitting hen it is to be believed that "the eggs are turned partially or completely much oftener than has been supposed, at least five times during any given day."

Some very careful experiments were carried out to determine the temperature of the egg itself when under the hen, and this was found to be about 3deg. lower than the bird—being 98deg. the first day and rising as high as 103deg. during the last three days. Applying this to artificial incubation, and according to the results of other tests, it is suggested that the best temperature for artificial hatching is 102-103 for the first half of the hatch and 103-104 for the last half.

In dealing with the question of moisture, it is stated that it would appear that a loss of 13 per cent. in weight during incubation produces the best results.



The Present Pressure.

This is a particularly busy month for the general producer, who in the rearing department especially is increasingly occupied with the growing stock of all ages and descriptions, and the continuance of incubation is steadily adding to the present pressure of his work. The need for constant change of ground, for sleeping and sheltering accommodation adequate to the altering requirements of growing birds, for regulating the dietary to the varied objects of production, are among the more important details. In the hatchery some notice must be taken of the gradual increase of external temperature as the season advances, in proportion to which some readjustment of the conditions of incubation may be necessary. It is impossible to foretell how far the atmospheric conditions may vary in any one year, but there is an average increase of some 10deg. in the temperature at this period as against that at the commencement of the usual incubating season—and a difference of 10deg. in the external temperature is worthy of consideration in the conduct of such a delicate operation as hatching. Arrears of hatching must as far as possible be brought up to date some time during the current month, especially as regards the more quick-growing breeds, which will serve to supply possible deficiencies in the ranks of future layers; and settings of goose, turkey, and guinea-fowl's eggs must be put down—with the addition of those of the Indian Runner duck.

Reservation for Stock.

Those who need the most insistent reminder regarding the necessity to reserve birds for future stock purposes, at a season most suitable for their requirements, are the men and women whose chief production is for the table; and those who sell their produce of lean chickens to fatteners are the most foolish in this respect, being for the most part unable to resist an immediate high price for birds that would serve them better than the later and cheaper ones they too often keep back for breeding.

This difficulty is increased in a year of any shortage, and the cottager or small farmer requires some courage to keep back his best birds when values run high, and the prices paid for chickens hatched during the best months for stock purposes are always comparatively good when the birds reach twelve or fourteen weeks of age. The usual consequence of this clashing of interests is a policy of procrastination as regards reservation for stock, the selection for that purpose being put off until the season is far advanced and the ruling values are at their lowest. Many large and successful chicken-raisers favour May-hatched stock birds for their purpose; but, inasmuch as many of these fail to come into profit until the earliest batches of eggs should be undergoing incubation, it is evident that the use of a proportion of March and April hatched birds would forward production considerably at a time when it is most desired; and to induce a sufficient egg-production by Christmas, the management and feeding of May-hatched birds (of a suitable table breed) must be exceptional.

Feeding Turkey Poults.

The old superstition relative to the inherent difficulty in rearing young turkeys, on account of their supposed necessary delicateness, has been to some extent dissipated by the extended knowledge regarding the requirements of these birds, and by a more general improvement in the character and constitution of the stock used in breeding. As a matter of fact, given well-matured and otherwise suitable parents, there is no unusual difficulty in rearing the young, the main essentials of success consisting of frequent and correct feeding and the taking of reasonable precautions against the influences of wet and cold. Although these birds develop into large eaters, their early requirements are for frequent rather than big meals—due attention to which fact does much to minimise the digestive disorders to which they are liable. From about twenty-four hours after hatching they require a small quantity of good and suitable food at intervals of about two hours until they begin to be successful in foraging on their own account. There are

various opinions regarding the proper ingredients to use in a food mixture for these young birds, but the hard-boiled egg diet has very commonly fallen into desuetude, although by some the use of eggs is adhered to, the raw eggs being stirred in with rice whilst the latter is being boiled in milk, and the whole dried off with oatmeal. An excellent commencing mixture, long known to some of the most practical breeders and rearers who have used it with much success, consists of milk curds and oatmeal, a mixture containing the essential constituents for the production of blood and the various bodily tissues. Considerable personal experience, however, makes it possible to affirm that young turkeys may be as successfully reared as chickens upon Sussex ground oats; nevertheless, the commencing curd diet has much to commend it. Possible green food includes onions, nettles, lettuce, mustard and cress, and particularly the dandelion—the latter on account of its tonic and alterative properties. From the age of about three weeks a small meal every three hours is sufficient, and the dietary may include Sussex ground oats, middlings, biscuit meal, and boiled wheat. A small proportion of rice may also be continued, and fresh or granulated meat should be added.

Ventilation.

Most of the more modern houses, hutches, and coops relieve the poultry-keeper of much of his responsibility in the matter of ventilation, provided he does not nullify the efforts of the makers by overcrowding or other misuse. Nevertheless, it is scarcely too much to say that the great majority of the actual commercial producers make their own, or utilise existing, housing accommodation, and are for the most part indifferent or ill-informed regarding the subject of adequate ventilation, which is always important in relation to health, but more particularly so with the advance of spring and the approach of summer. Moreover, the accommodation of a house is too often calculated upon the basis of the floor space rather than the cubical contents, and overcrowding intensifies the ills of the possibly already defective ventilation. In the construction of a house the principal point in this connection is to prevent stagnant air, the operations involved being the expulsion of the foul air and the admission of fresh, bearing in mind that the exits must be at the top, and that a strong inrush of cold air will produce draught unless the inlets cover a large surface and the currents are broken.



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TURKEYS UNDER NATURAL CONDITIONS.

The Turkey Loves Woodlands and Delights in Clumps of Bushes.

REARING IN THE OPEN.

BY A. T. JOHNSON.

THERE are very many people in this country who, for various reasons, do not go in for rearing-sheds or any such special contrivance for the protection of their early chickens from wet and cold. And these people belong to the largest class of poultry-keepers in the land—namely, the farmers and peasantry. It may be urged that any system of rearing in the open is not to be encouraged, that it will pay in the long run to build sheds, and so on. But that I do not intend to discuss here. We know that an enormous number of early chickens *are* reared in the fields, farmyards, and orchards, and that the mortality is possibly very great. We may be quite sure, too, that this old-fashioned way of rearing will continue in vogue for a good many years yet. Therefore, without questioning the sanity of the method, without recommending a better one, I would here offer a few hints as to how the open-air rearer may best combat the elements and make a success of his undertaking, being convinced, as I am, that his intentions are good and deserving of the highest encouragement.

As most of the rearers I refer to still "stick to the old hen," she, as a time-honoured institution, may be considered first. Possessed as she is with an overflowing anxiety to find food for her brood, she must, in the first place, be cooped to check that wandering instinct of hers, for there is nothing that increases the mortality list faster than the effect upon the chickens of being led about in all weathers, a draggle-tailed, cheeping crew at the rear of an over-anxious mother. A winter coop should be of stouter make than one used for summer, and as well as having wide eaves and a good weather-board in front, it must stand on a floor raised an inch or two from the ground. A detachable run, with wooden sides eighteen inches deep, and a fine-mesh wire top, is

necessary, and it should be the same width as the coop, so that it can stand immediately before the latter; and it should be not less than four feet long. Eight to ten feet is a convenient length. The object of this arrangement is to provide a place in which the chickens can feed and exercise on the open ground, while they are protected from vermin by the wire above and from cutting winds by the wooden sides. If there is much fear of attack by rats in the daytime the under part of the run may be wired also, but if this can be avoided the run will be obviously much better for the birds' feet.

The coop must, of course, be placed in a sheltered situation, on the driest possible ground, with its back to the prevailing winds, and where it can get all the sunshine there may happen to be. The litter is a most important item, and it does not matter very much what it is so long as it is short, dry, and clean. Peat moss, of



A WELL-SHELTERED SITUATION.

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course, is excellent, but, failing that, chaff will do, or the husky refuse left by the threshing machine. Shavings are useful and warm, but sawdust is not desirable, for the chickens are liable to eat more of it than is good for them. Whenever the litter gets wet, either through leakage, or rain or drifting snow blowing in at the front of the coop—though a good weather-board should prevent most of this—it must be renewed, and it is just as important to keep it clean by removing the old and giving a fresh layer when necessary. The coop and run should be moved twice a week on to fresh ground, and this latter should not consist of long grass. If the turf is not short and well drained, hard gravel, such as a garden path, is infinitely better. In this latter case, or even when

it is on the best of turf, if the weather is very severe, the run is best strewn with chaff, which will keep the chickens' feet off the cold ground and provide material in which they may scratch for a sprinkling of dry food.

This latter is the greatest boon ever invented, or popularised, to the chicken-rearer in general and to the open-air early rearer in particular. With it he can keep his youngsters employed, he can give them means of diversion and get them to exercise themselves in even such a small space as the run I have mentioned. Yet it is not everything. I would never advise the rearer, at this season, to put all his trust in "dry food." The chickens, if they are to thrive, if they are to be fortified against the inclemencies of the season, require also something of a softer nature that will assimilate quickly. There is meat, for example. These "early birds" must have their "worm" in one form or another, and as nature does not go out of her way to supply the worm itself, we must provide the substitute. Some "dry feeds" contain meat, if the term may be used, in the form of "dried flies" and "ants' eggs," but, candidly, I do not personally consider these articles of diet really of much greater feeding value than their names would seem to imply. "Dried flies" as an entrée, with "dry feed" to follow, sound very dry indeed, and experience teaches me that any of the granulated meats give better results, and "green bone" (used very carefully) best of all. But the cottager or farmer does not usually go in for these articles. Perhaps he has never heard of them, and if he has they do not always, by any means, find a place in his feeding menu. Nevertheless, I would persuade him, if I could, that meat of some form is really essential to ensure the best success with early rearing, and if it is necessary for chickens who always have a roof over their heads, how much more necessary must it be for those who are exposed to much of the weather? If he cannot or will not go in for prepared meat, butcher's scraps are an excellent substitute, and a little granulated or minced suet in hard weather makes a wonderful difference to the young stock. There is one article of food, however, which comes in the farmer's way, and which may take the place of meat, and that is milk. With a good supply of this the rearer need not worry about meat at all, for the milk will take its place, and in its use there will be far less risk of the inexperienced making mistakes, as he is liable to do with serious consequences when using "green bone" or meat. I once saw a batch of chickens reared most successfully upon crusts and stale bread, soaked in milk, and green food. They only had a cucumber frame, placed on grass, for a run, and a home-made brooder of most primitive type at one end for a sleeping place. Yet they did well, far exceeding everyone's expectations. The same rearer, who had a taste for experiment, tried feeding on bread soaked with boiling water, then mashed up with some beef dripping and left to cool, but the results were not quite so satisfactory. Looseness of the bowels was more or less prevalent, and the chickens were not as robust as those which lived on the bread and milk. Next to this latter I would recommend rice boiled in milk and stirred crumbly with white thirds or fine oat-

meal for outdoor early rearing. Chickens are very fond of this food, and its starchy nature, under these conditions, is rather an advantage than otherwise. Linseed might be used more largely in conjunction with dry food at this time of year also, and finely kibbled maize (the flat kind) is an excellent grain for the chickens which are big enough to swallow it. Maize-meal, which is in such everyday use now on farms, should never be fed to chickens in the raw state, but after well scalding and cooling it makes a useful change of food if mixed into a friable consistency with middlings. There is only one other article of food of the many which might be recommended here that I shall draw attention to, and that is the onion. If this vegetable were used more largely by rearers we should not hear so much of "infant mortality" in the chicken runs, nor of gapes, diarrhoea, and many other diseases. Not only is it a health-promoter as a vegetable, but it has a high feeding value, it is warming to the system, and, what is very important, it is cheap. Onions are best fed in the raw state after being chopped or passed through a mincer, and they may either be given with any soft food that is going, or fed separately. Chickens will eat them greedily any way, and their value cannot be over-estimated.

ARTIFICIAL REARING.

BY J. W. HURST.

WHEN production passes a certain point it involves the use of the incubator, and it is in such circumstances usually essential to complete the introduction of the artificial by the addition of brooding appliances. To the extent of the increased output the advantages are obvious, but it must not be forgotten that the bulk of past experience in this country tends to the conclusion that there are limits to profitable production by artificial means—the multiplication of the numbers reducing the amount of direct personal attention, which is additional to the loss of the hen's motherly care. Having due regard to these and other apparently inevitable limitations, it must, nevertheless, be admitted that innumerable present-day poultry-producing enterprises could scarcely be conducted with any sufficient measure of success without the adoption of the artificial methods, in their application to the various purposes of production, whether upon a large or comparatively small scale. It may be stated that observation and experience indicate that the best results, in an ordinary way, are secured with outdoor brooding or fostering appliances of moderate capacity, which are more workable when the external temperature is falling. With any description of artificial mother it is, however, easier as a rule to keep the chickens warm in severe weather than it is to keep them cool under opposite climatic conditions.

In most circumstances of practical production large brooding-houses with elaborate systems of heating are more or less unsuitable in this climate. Their period of usefulness is much more limited than that of outdoor brooders or foster-mothers, owing to the fact that they

cannot be so successfully worked under variable climatic conditions, especially as the season advances; consequently the return on a relatively large outlay is disproportionate, and, in addition to depreciation, no interest accrues from invested capital during the major portion of the year. A chief practical disadvantage of these large houses is the increased difficulty of hardening off the birds, a process which must be early commenced and persistently continued.

In view of the atmospheric conditions prevailing within the hatching machine and its drying off compartment, from which the newly hatched chickens are carried direct to their mechanical mother, it is obvious that too low a temperature at the commencement of brooding must be inimical in its suddenness—and young chicks are very susceptible to sudden changes; but it is in the maintenance of the initial high temperature that the operator usually overreaches his object, instead of gradually, sufficiently, and constantly reducing and balancing with the external conditions. The chickens must go outside some time, and unless they are inured to the English climate from the beginning their production will be more or less useless; but, apart from the skill involved in the hardening process and in striking the mean between over and underheating at all seasons and through all changes, there is very little difference as regards the actual management of the naturally and the artificially reared.

One detail of management needs some insistence in connection with the use of brooders, and it is an additional argument in favour of the outdoor appliance of moderate size—i.e., the necessity for frequent removal to clean ground, which is too often neglected by users of heavy or unwieldy machines. Provided it is reasonably sheltered by trees or hedges, a field of sound, well-drained turf is the best place in which to set a brooder or foster-mother. In such a situation there will be ample room for a frequent change of site, and the birds will grow better amid such suitable surroundings than in any conditions of confinement. Methods of indoor brooding and the too frequent use of a sheltering-shed not only necessitate much more constant attention, but make the subsequent management increasingly and unnecessarily difficult, and in general add very considerably to the uncertainty of the results.

In no case, however, can brooding appliances be left to do their own work to the same extent that incubators can, owing to the difficulties in the way of efficient automatic regulation of the heating

apparatus; and in very many of them there is no attempt at mechanical regulation, the attendant being entirely dependent upon his own skill and judgment in the manipulation of ventilating slides and the height of lamp flame. In this connection, in addition to estimating the probable rise or fall of the external influence, the operator must take into account the position (within the machine) of the thermometer in relation to the level of the chickens—a detail in which there is considerable variation in different makes—so that a recorded degree of temperature suitable for one appliance would be quite unsuitable for another. If these few general facts are remembered, and the chickens are managed according to the approved rules of practical production, there should be no real difficulty in the successful use of the appliances of good makers.



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A GOOD TYPE OF BROODER HOUSE, SHOWING THE FAN-SHAPED ARRANGEMENT OF THE RUNS.

POULTRY - BREEDING : PROBLEMATICAL AND POSSIBLE.

To the Editor of the ILLUSTRATED POULTRY RECORD.

SIR,—I have read with great interest Mr. Edward Brown's article on this subject in your February issue, and, without any desire to differ from him on the main points with which he deals, I feel that, as a practical breeder of birds for nearly all the laying competitions of the Utility Poultry Club, I ought to say that my own experience has been all against Mr. Brown's contention that weakness of constitution, in the progeny at least, results from using as breeders those birds which are abnormal layers.

Some three or four years ago I had a pen of a dozen hens whose average for the first laying year was con-

siderably over 200 eggs per hen—the highest bird laying 265 and the next 240. I bred from this pen, and the descendants were third in the recent twelve months' Laying Competition. I have therefore not experienced "the weakness of constitution" referred to.

Seven years ago I first competed in the Utility Laying Competitions, and I have three times been in the prize list. I have always bred from the birds that have competed, and have never experienced any set-back from this cause, and I cannot understand on what ground Mr. Brown bases his opinion, as the competing birds are in no way forced, and are treated as a rule on the

corners composed of railway sleepers, combined with wire netting and coarse canvas boarded up two feet from the bottom, and a wooden roof, was one which kept the birds healthy and did not interfere with their laying in bitterly cold weather, although they slept in practically the same temperature as the outside air. But when they were allowed to roam in the snow or mud many of them ceased to lay.

As regards food: I found that a small breakfast, a small midday feed, and a heavy supper was the best mode of treating the hens in the winter months, as when they received a full breakfast they stood about with no



ARTIFICIAL REARING ON A CANADIAN FARM.

most scientific principles, and consequently would appear to be more fit for breeding from than hens which have not had the same amount of attention.

I may mention that for over ten years I have kept a few birds as a hobby and with a view to egg-laying entirely. Some of the conclusions I have come to may be of interest to others. My experience showed me that the English winter (South of London) did not affect the laying of the birds as much as damp feet. In fact, I found that a house with the North side and

desire to search for food, chills being the result and also a decrease in the egg yield.

As to breeding: My White Wyandottes that were hatched out during the first fortnight in February were better winter-layers than those hatched out in the first fortnight in March.

In conclusion, I may mention that I am merely an amateur, and have no hens or eggs for sale.—Yours, &c.,

HOWARD L. HEWITT.



"A Poultry Manual."

Under the above title there has just been issued by the South Australian Department of Agriculture the third edition of an excellent bulletin by Mr. D. F. Laurie, poultry expert and lecturer to the South Australian Government. This consists of fifty-eight pages, with five illustrations dealing with views on the Roseworthy Farm, some of which have already appeared in the ILLUSTRATED POULTRY RECORD. The subject is treated broadly, so far as production is concerned, in all its aspects, and very sound advice given. Special sections deal with diseases, always a necessity in a new country, which has to gain its own experience and devise its own methods. The manual is a most useful production, one which cannot fail to spread the light in the colony.

A Canadian Omission.

The *Toronto Mail and Empire* in a thoughtful, suggestive article calls attention to a fact which should stir up Canadian breeders—namely, that no race of fowls has yet been evolved in the Dominion :

It is now more than fifty years since the first poultry show was held in Canada or the United States. In the lifetime, therefore, of a man not yet old there have been produced on this continent three distinct breeds of poultry—Rocks, Wyandottes, and Rhode Island Reds—and these have not only been produced, but established so that they breed as true to type as the English Dorking, which is hundreds of years old. Canada has evolved no breed of fowl, but has been a most profitable market for the American breeds, and we dare say that there is not an inhabited township in the Dominion where poultry can thrive that there is not to be seen the familiar Barred Rock hen, which remains by far the most popular general utility fowl on this continent. As all breeds of fowl have descended from the wild jungle fowl, it is obvious that every breed is a manufactured one, though some have come into existence in the process of natural evolution, while some have been made definitely to order.

Progression in Natal.

In a brief survey of the poultry industry in Natal for the past year "Colonial," writing in the *Natal Mercury*,

says that there has been a vast improvement in the quality of eggs and table poultry displayed for sale in the municipal markets, and also in the way in which they are graded and packed. He continues :

The improvement in quality is the outcome of poultry-keepers going in for pure-bred stock more than previously, and, as the necessity for this course is more generally grasped, so will the results be reflected in the produce sent to the markets for disposal. If the Government will only realise the importance of giving practical assistance to the industry by the appointment of a qualified expert, a big expansion in this business will be imminent, and, when once it is thoroughly established, there is no reason why an export trade could not be worked up with the surplus products, especially now that the adjoining States are working up the industry for all it is worth.

The Limit of Egg-Production.

The question recently discussed in the ILLUSTRATED POULTRY RECORD ("Poultry Breeding : Problematical and Possible," February, 1909) is evidently exercising the minds of experts in every quarter of the globe. Mr. D. F. Laurie, in a paper on "Scientific Breeding and Heredity," read before the Australasian Association for the Advancement of Science, at Brisbane, in January, states :

We cannot be certain, but personally I have strong suspicions that induced activity of the ovaries is in excess of the capacity of the glands in the oviduct, and that the shock due to continuous laying accounts for many abnormal features.

After showing that the high averages are abnormal and not maintained, he says :

I am of opinion that our most noted strains have almost reached the level of highest development for egg production, and experience is proving that vigorous selection for hardiness and constitution is absolutely essential to ensure this high egg-production.

Sir Francis A. Channing, Bart., M.P., in Canada.

In a letter to a Northamptonshire contemporary Sir Francis A. Channing thus speaks of the Macdonald College, described by Mr. Prain in our January issue :

I inspected the whole of the buildings and arrangements at the Macdonald College last September, and

found that they surpassed all my expectations in their simplicity, completeness, and scientific adaptation to all the purposes contemplated.

Dr. Robertson told me that the results of the winter 1907-8 had been equally remarkable.

I should add that the colony houses are raised in winter, perhaps all the time, about eighteen inches above the earth.

It should be remembered that the intensity of the frost is less injurious in Canada, owing to the extreme dryness of the atmosphere, which is, except in spring and autumn, very free from damp.

That these scientific experiments (this is one of many) are being carried out not only by the experts and the university students, but in constant and daily exhibition before very large numbers of students who are being trained for rural teachers, and also used in constant illustration of high school and even elementary teaching for younger pupils of all ages, is part of this grandly concentrated scheme.

Why cannot the wealthy men of England make similar provision for opening their minds, training the faculties, and stimulating the love of rural things here in our English agricultural counties?

Fattening in Western Canada.

Efforts are being put forth to develop the poultry industry in Western Canada, in order to meet the enormous demand for eggs and chickens on the Pacific Slope. In the Province of Alberta the Ministry of Agriculture has started poultry-fattening on the co-operative principle in connection with creameries operated under its direction. The following are the rules laid down for the guidance of those who supply the birds:

1. All poultry must be delivered alive and free of charge at the fattening stations at such times as may be required by the Department of Agriculture.

2. Only spring chickens will be accepted unless arrangements have been made for fowl.

3. All chickens must weigh at least from 3½ lb. to 4 lb.

4. In no case will cock birds, crippled, deformed, sick, or diseased birds be accepted, and the operator in charge of a fattening station may refuse to accept any birds which, in his opinion, are unsuitable for fattening purposes.

5. The crops of all birds must be empty when received at the station and before being weighed. (This is most easily attained by cooping the birds the evening previous to delivery.)

6. All birds will be weighed alive on delivery at the station, and the seller will be given credit for the total weight received.

7. The Department of Agriculture will pay in advance eight cents per pound live weight for chicken, and six cents for fowl, upon receipt of an advice from the operator of the fattening station.

8. The Department of Agriculture agrees to provide suitable accommodation and efficient management for such co-operative poultry-fattening stations as may be established and to properly crate and fatten the birds accepted from patrons, and to market the same to the best advantage.

9. The Department of Agriculture agrees to keep an account of all revenue received from the sale of poultry, and, after deducting the amount of the original advance and the actual cost of fattening and marketing, to return the balance at the close of the season to the patrons in proportion to the weight of poultry received from each.

THE CANADIAN POULTRY INDUSTRY.

BY WALTER JAMES BROWN,

Agricultural Editor, "Toronto Globe," Canada.

PROBABLY in no other part of the British Empire are there such vast areas of land suitable for poultry-raising as are found in the nine provinces of the Dominion of Canada. From the standpoints of climate, soil conditions, food supplies, and availability to markets Canadian poultry-raisers are, as a rule, well situated; but during recent years the industry has fluctuated to such a degree that as yet it has not assumed an important place in the nation's agriculture. Like every other branch of farming in this country, it has before it splendid possibilities, but is still awaiting development. As a specialised industry, conducted on a purely commercial basis, it has made scarcely more than a beginning. There are in the Dominion a few farms devoted exclusively to poultry, but they have not been conducted for any great length of time, and may still be considered as experiments. There seems to be no reason why poultry-farming should be any less successful in Canada than it is in any other part of the civilised world. The opportunities are here, and so are the facilities; it is merely a question of management.

Mixed or diversified husbandry seems to suit Canadian conditions better than specialised farming. The leading agriculturists of the country have for some years been urging farmers to practise diversified husbandry, but to make one industry—such, for example, as dairying or fruit-growing—the chief concern, and all other departments or phases of their enterprise subservient to the leading industry. It is true that in some districts fruit alone is grown, and in other districts only wheat; but this is not considered good practice, and, as a rule, while the farmer may have some leading industry to which he gives special attention, he usually has one or more adjuncts, or side-lines, that enable him to turn his by-products into money and otherwise increase the revenue from his land. It is the constant aim of agricultural writers and teachers in this country to get the farmers to intensify their systems of cropping, to keep their land free from weeds, to increase the fertility of the soil, to keep more and better live-stock of all kinds, and, as far as possible, to feed everything they grow, and buy oil-cake, mill-feeds, &c., and sell only the products of their skill in the form of fat cattle, mutton sheep, bacon hogs, milk, butter, eggs, dressed poultry, and other similar products.

Poultry-raising in Canada is essentially an adjunct or a side-line to the ordinary business of the farm. Unfortunately, in far too many instances it is largely a neglected adjunct. While the majority of farmers agree that they should keep a few fowls for the purpose of supplying eggs for family use and occasionally meat for the table, they have not considered the claims of the industry seriously, and do not give their poultry-yards

more than scant attention. Farm poultry-raising is conducted for the most part by the women and children. The hens, ducks, geese, and turkeys are allowed to forage for themselves for the greater portion of each year. They are seldom considered as a part of the regular stock on the farm, to be housed, fed, and managed with a view to financial profits. The women and children gather the eggs, set the brooding hens, feed the newly hatched chicks, and in the fall pluck and market the surplus birds. Poultry-houses of a modern type are few and far between, while the fowls take their chances of finding suitable places in which to roost. They invariably hide their nests about the farm buildings, causing great inconvenience in gathering the eggs. When the season for marketing approaches there is seldom any attempt to properly fatten the surplus birds, and in consequence many of the fowls offered for sale as dressed poultry during the fall and winter on the average city or town market do not attract buyers or command high prices. Dressed poultry, as a rule, is lacking in appearance, type, uniformity, and quality. The eggs supplied by many farmers to country stores are just "eggs." They are not selected or classified as to colour, age, or size. When they reach the consumers they are not always worthy of respect. During the present winter fresh eggs have been less expensive than for several years, while the ingenuity of local retailers is shown in the classification they adopt; for example, "new-laid eggs," 45 cents a dozen; "select eggs," 34 cents; "boiling eggs," 33 cents; "fresh eggs," and 28 cents; "cooking eggs," 22 cents.

The poultry industry in Canada needs organisation, while the people need to be awakened to its possibilities and educated in its essential methods. The vast majority of the chickens raised on Canadian farms are of non-descript or no breeding. One sometimes finds crosses of Leghorns, Barred Plymouth Rocks, White Wyandottes, Buff Cochins, and even Games, represented in a single flock. It is no wonder, therefore, that the average farmer considers his poultry-yard beneath his notice, and when it is suggested that it might be made to add several hundred dollars a year to his income he shrugs his shoulders and remarks, "There is no money in poultry."

The few men and women who are making poultry-raising a financial success are keeping the utility or general-purpose breeds, as, for example, Barred Plymouth Rocks, White Wyandottes, Orpingtons, and Rhode Island Reds. They are selecting and breeding with the greatest care in order to produce hardy strains, are using incubators for hatching purposes, are making a speciality of winter egg-production, and are selling the new-laid eggs and well-fattened table fowls to private customers at fancy prices. From the success already

achieved by those who are putting a reasonable amount of intelligence into their effort there seem to be almost unlimited possibilities for the development of the poultry industry in Canada, especially when conducted on a scientific and a business basis.

Owing to the aggressive warfare waged by the Press, agricultural colleges, farmers' institutes, experiment stations, &c., against the ignorance and the indifference of the people regarding poultry-raising, despair as to the future of Canada's poultry industry is giving place to hope and enthusiasm. Increasing numbers of farmers are each year erecting proper poultry-houses, are improving their flocks by the introduction of pure-bred male birds, by purchasing sittings of eggs, by employing incubators for hatching purposes, by more intelligent feeding, and by using trap-nests; they are also classifying the eggs offered for sale, adopting crate fattening and dry-plucking, and are carefully packing the dressed poultry for market.

The poultry branch of the Central Experimental Farm, Ottawa, under the able management of Mr. A. G. Gilbert, has for twenty years conducted investigations in breeding, egg-production, feeding, and management, and has distributed free of charge thousands of copies of reports and bulletins, and has answered innumerable inquiries from all parts of the country. The Central Experimental Farm reports and bulletins are published in French as well as in English, and thus appeal to French-speaking Canadians. For fifteen years the Ontario Agricultural College has had a well-organised and thoroughly equipped poultry department. Its manager, Mr. W. R. Graham, has been a painstaking and enthusiastic investigator and teacher. Not only do the students taking the regular college courses receive instruction in poultry-raising, but each year special classes of "short-course" students assemble for a period of two weeks to take lectures, observe practical demonstrations, &c. The short course is concluded by a poultry conference, during which a number of experts from various parts of Canada and the United States deliver addresses on special topics. The college poultry department issues bulletins, answers inquiries, and sells to the general public large numbers of stock birds and sittings of eggs. The experiments in the housing of poultry, conducted by Mr. Graham, have revealed the interesting fact that the more poultry buildings cost and the warmer they are, the smaller the results in the egg-production of the fowls occupying them.

As the Macdonald College, located near the City of Montreal, has so recently been described and illustrated in these columns, more need not be said respecting Mr. F. C. Elford's work there.

(To be concluded in the May issue.)



The Toe Punching of Chickens.

To be! That is the verdict of the Poultry Club on the toe-punching question. At a recent meeting of the council of that club it was decided to rescind the minute passed on October 4, 1905—"that punch marks be not allowed"—and that, in future, marking fowls by means of plain round holes punched in the web of their feet be permitted. Consequently birds so marked will be eligible to compete at shows held under Poultry Club rules. It may be that a certain section of the Fancy will view the situation with alarm. And I have already heard it suggested that it is "the thin end of the wedge" as regards sanctioning the use of private marks. There can be no question, however, that toe-punching, as permitted by the Poultry Club, can but rarely be a means of identification for judges; in fact, when once the scheme is in full swing it will be impossible to use it for the purposes of collusion between exhibitor and adjudicator. The fact that "plain round holes" only are allowed should not be overlooked. Had it been otherwise it would be a very easy matter for an exhibitor to have a special design made for the toe-punching of his strain of poultry, and to register it. But that is impossible under existing conditions, and what is to prevent even a hundred exhibitors of the same variety using the same combination of marks? The answer is not far to seek. Punch-marking is cheap, effective, lasting, and simple, consequently it will undoubtedly be widely adopted in the near future.

Other Means of Identification.

When it became known that toe-punching was likely to be permitted some fanciers asked what objections there could be to the pedigree ring in the show-pen. Such rings have been in vogue for some time, and they are certainly handy for the purpose for which they are intended—as a means whereby a pedigree may be recorded. They are, of course, liable to fall off the birds' shanks and so become lost; and even the best of them can be readily removed and thereby cause much trouble. But, leaving that out of the question, I can quite see that, under present conditions of judging, it would not be a wise thing to recognise the rings in the show-pen. As I

have previously pointed out in these notes in connection with toe-punching, the combination of punch marks is really very limited: it must be, since the web of the fowl's foot is not very large. But it would be by no means difficult to have one's own private marks on a pedigree ring, even if the whole of the rings were of a regulation pattern; in fact, many rings of this sort are so marked. Of course each breeder does not have rings specially made and numbered for his own use, so after all there is a great similarity between them. Nevertheless, the surface, which is of plain metal, is large enough to allow of private marks, hence it would never do for the Poultry Club to countenance these rings. Until the existing absurd method of poultry judging is abolished the club has done well enough to sanction the use of toe punches, even if it does restrict the marks to plain round holes.

The Conference Ring.

It has been accepted for some time that the fact of a chicken being "Conference rung" is proof the bird has been hatched in the year indicated on that ring. Consequently, many 1909 chickens will be so rung. These rings, which are made in fifteen sizes, are issued annually by the Marking Conference on March 1 (with the exception of those for Indian Game, which are not issued until a month later), and different colours are chosen each year for the various breeds and sexes. The rings cost from 1s. 6d. to 3s. a dozen, and full particulars of the sizes and colours for the present season may be obtained from the secretary of the Marking Conference, Mr. Henry Allsop, 89, Spencer-street, Birmingham, who has sole control of the manufacture and issue of these special rings. The only weak part about the use of them, from an exhibition point of view, is that probably not one judge in a dozen knows the correct colours for the different breeds. As a conclusive proof of this I could give the names of two fanciers who last season exhibited on more than one occasion, and under different judges, specimens of the same breed and sex—I am aware that the colours of the rings for cockerels and pullets are not the same—with differently coloured and sized rings. And perhaps the

most amusing part of it was that in neither case was the ring of the correct colour, that which was issued in 1908, for that particular breed! Other fanciers may have noticed this little weakness; but, whether they did or not, it existed. It is at least a proof that the Conference rings can be used successfully for other than legitimate purposes.

A New Ring.

Mention of the Marking Conference ring reminds me that the Poultry Club proposes to issue a cheap ring of its own for use during the present season. So far as I am aware, the ring will be available on and after March 31. In view of the so-called "bone test," it may strike the general fancier as somewhat contradictory for a club which professes to have no use for the ring to issue one! But that is a passing thought. What I am not certain about is whether the Poultry Club will retain the sole right to issue this special pattern of ring. The fact is, the cost of production is not sufficient to permit of the ring being enamelled. Now, the enamel, which is of different colours, is the strong point of the Marking Conference ring—it cannot be "monkeyed" without detection, and the Fancy has had proof of it. But even if the makers of the new ring issue it solely to the Poultry Club, I will guarantee that it will be such an easy one to copy that faking will be "child's play." Nay, I will go further. I will undertake to ring a cockerel hatched this month with a ring which shall be an exact copy of that issued by the Poultry Club on March 31, 1910; or if the bird will live long enough with a ring bearing the year 1920 and any other marks which may be on that ring. To quote a well-known advertisement, "It's so simple." I do not intend to explain the method here, and I have no wish to sell the patent! But I mention it to show what to me appears the great weak point of a plain metal ring—one not enamelled.

SHOULD JUDGING BE OPEN?

BY W. W. BROOMHEAD.

DURING the past season or two it has been by no means rare to hear complaints against the decisions of poultry judges. Now, these charges have not been made on the ground that those gentlemen who act in a judicial position at the present time lack the experience and knowledge which fit them for such responsible offices. Nor is it that exhibitors and visitors at our poultry shows are more capable of criticising the awards than was the case in the earlier days of the Fancy. The whole burden of the complaint appears to be that the most important prizes go to a favoured few. Dissatisfaction on this score, in fact, has been very freely expressed of late; and I was not much taken aback when a novice exhibitor once said to me that it was quite evident, if he wished to win, he must belong to one clique or another! In the circumstances one not unnaturally feels constrained to ask if it would not be

feasible to have a change in the system of judging, and whether it would not be better for all concerned to have open judging in awarding prizes at poultry shows.

Now, by open judging I do not refer to the custom in vogue at some exhibitions where visitors, by paying an extra fee for admission, are permitted to enter the tent or hall during the time the judge is engaged in making his awards. That is a custom which probably originated in the "dark ages" of poultry-showing, and one which should not be permitted under any pretext whatever, since it is nothing short of a hindrance. The task of judging is at no time an enviable one, but it is rendered twice as difficult as it otherwise would be by permitting the public to crowd round the judge while he is carrying out his duties. By open judging I mean providing the adjudicator with an official catalogue instead of the usual judging books, and thus allowing him to know exactly who are the owners of the specimens on which he has been engaged to pass judgment.

Attending the hundreds of poultry shows which I have done during the past few years, and coming into contact with "all sorts and conditions of men," I get to hear much that does not find its way into the poultry Press. There is no doubt in my mind that some exhibitors have almost lost faith in the Fancy during the past season or so; in fact, more than one novice with whom I am well acquainted has had serious thoughts of "throwing the whole thing up in disgust." And this is solely on account of the supposed preference there is on the part of some judges constantly to place the birds of certain renowned exhibitors in front of those belonging to "lesser lights," although the specimens may be in every way of equal merit.

It must be admitted that many, nay, most, tales concerning awards being improperly made by some poultry judges have to be taken with the proverbial grain of salt. Nevertheless, it is not unreasonable to suggest that there may be some truth in the assertions; and I cannot help thinking that if open judging were universally adopted, it would at any rate go a long way to allay suspicions; in fact, I firmly believe that, in the long run, it would be the means of effecting a complete remedy, since all would be on an equal footing.

It is unfortunately too true that, no matter how upright a judge may be, there is generally someone at nearly every exhibition of any importance, who thinks he has been wilfully done out of a prize because another better-known fancier has been favoured. And, to say the least of it, this kind of aspersion is most annoying to a gentleman who, in his capacity as poultry judge, has honestly endeavoured to do his duty and award the prizes solely on the merits of the birds placed before him, and irrespective of their owners. In my opinion, the adoption of open judging such as I suggest would entirely sweep away such grievances.

I should very much like to see the system thoroughly tested; and I feel sure that if the executives of some of the most important poultry shows were to take the lead in this matter it would be the more likely to result in real and permanent good being done. Many fanciers

have been under the impression that the plan was, until last year, in vogue at the Royal Shows. As a matter of fact, in his report of the Newcastle event of 1908 the representative of a contemporary journal as good as stated that the judges at that exhibition judged by catalogue. But although it is true that until the 1908 show each judge of poultry at the Royal was provided with an official catalogue ere he commenced his duties, I can state positively that the judges last year did not have catalogues, nor were they permitted to see them until the whole of the judging was completed and luncheon was over—it is also a fact that the catalogues were not used for open judging. Provision was made for reference to the official list in the show rules of the Royal Agricultural Society—the said rule, by the way, has now been slightly altered—but I very much question if any of the judges even referred to them, even to aid them in determining the age of a doubtful chicken, since it was for that reason that catalogues were issued with the judging books.

So far as I can ascertain, the open judging system has not been given a thorough test at poultry shows during recent years. It may have had a run in the early days of poultry exhibitions and have proved fatal. On that score I cannot say anything definitely, nor does it strike me as being of much importance. The poultry fancy of then and now is vastly different, and the failures of the past may be the successes of to-day. One instance, however, I can vouch for, in which open judging resulted in entire satisfaction, was at a certain club show some years back. The judge at that event was suspected of being in collusion with two exhibitors. To remove any doubt on the subject, however, the secretary of the club, at the request of his committee, handed to the judge the official list of those who had entered birds. And since the judge had the list ere he commenced his duties, he used it with the result I have mentioned.

It would be very interesting to hear what some of my brother judges think of the system; and the editor of the ILLUSTRATED POULTRY RECORD can doubtless be prevailed on to spare some of his valuable space for an expression of opinion on the subject. Personally, I cannot help feeling that judges would be benefited quite as much as exhibitors. I do not suppose for a moment that it would in any way reduce the difficulties in judging by knowing to whom the birds belonged; rather, in fact, would it be inclined to put a judge more than ever on his mettle. But there is no question that it would remove all the absurd ignorance which some people profess to hold concerning the ownership or the identity of frequently exhibited specimens. Moreover, I fail to see how the system could in the least hurt honest and upright exhibitors; it would surely give them a greater confidence in the judge, and, too, in the show management itself.

Then there is another advantage which would be gained by adopting the open judging system—namely, it would surely remove all the difficulties about show officials exhibiting. At the present time those committeemen, stewards, or secretaries who exhibit at

“their own” shows are frequently denounced as persons who practise all manner of collusion to defraud other exhibitors of money prizes, and to obtain the honours by means which do not take merit into account. But open judging would place such gentlemen on the same footing with every other exhibitor, and it would also silence those grumbles from outsiders, which are mostly grossly exaggerated, that promoters of poultry exhibitions start the shows for their own glorification and benefit.

From whichever point this suggested system of open judging is viewed, I cannot help feeling confident that it will be found to work well. At any rate, it is one which merits a thorough test. Although it might not entirely quench all those disagreeable suspicions which some people will entertain of a judge and an exhibitor working together, it must lessen them and to a great degree entirely remove them. I would not go so far to say that any judge who refused to countenance open judging would thus prove himself to be guilty of dishonesty, since some of those gentlemen who have honourably for year after year awarded the prizes at our exhibitions may object to the scheme and doubt its usefulness. We cannot all view a subject in the same light. Nevertheless, if those who are interested in it will state their views in the RECORD, it will, at any rate, “show how the wind blows,” and something tangible should result.

In conclusion, I should like to point out that some such system of open judging as that which I suggest for poultry has for long been countenanced in the dog fancy, and there can be no question that it has been a success. In larger stock—horned cattle and horses, for instance—the judges know the names of the owners of the animals; and in other fancies no secret is made as to who are the entrants. And since such exhibitions and those of poultry are very similar in management, there is no reason why the plan should fail when applied to poultry shows. It is not to be supposed that every evil can be remedied at the beginning, and there may be difficulties connected with this new system. But if it only to some extent checks suspicions, which frequently have no proper origin, it will place the Fancy on a more satisfactory basis than it has been during the past few seasons by weeding out the grumblers and those who will not go straight.

FANCY AND UTILITY.

To the Editor of the ILLUSTRATED POULTRY RECORD.

SIR,—The prominence lately given in the ILLUSTRATED POULTRY RECORD to the cleavage which is said to exist between “fanciers” and utility poultry-keepers induces me to offer the following remarks in the hope that you may be able to afford them the hospitality of your columns.

It seems to be pretty certain that a combination of show-pen beauty with practical utility has never yet been attained in any breed. The fancier is always striving after fancy improvements, irrespective of economic

qualities, with the inevitable result that eventually a purely fancy bird is produced. The conversion of a utility fowl into a fancy one is, as a rule, chiefly a matter of time, although many of us would not go quite so far as to agree with Mr. Tegetmeier's remarks that "no one breed of fowls has been taken in hand by the fancier, that has not been seriously depreciated as a useful variety of poultry."

The history of the Cochin, the first of sitting breeds, and of the Spanish, the first non-sitter known in England, are striking examples of such conversions. The former, originally a good layer with white flesh and nearly white skin, and with but little shank feather, was the cause, about sixty years ago, of the greatest boom in utility poultry-keeping known during last century. At that time the spread of railways had begun to exert its influence on the dissemination of poultry, and had also made open exhibitions possible—conditions which had not existed in the older coaching days. In 1850 the Cochins made their début in the show-pen at Birmingham. We know pretty well what they were like on their first introduction into this country from Shanghai in 1847. Mr. Tegetmeier has given us a drawing of them. In 1853 the *Illustrated London News* published an illustration of a pair of Cochins by Mr. Harrison Weir, and in 1865 Mons. Jacque, a well-known French poultry artist, made a drawing of a cock and a hen. In the "New Book of Poultry," by Lewis Wright, some of these drawings are reproduced. They illustrate a vigorous, active, useful-looking breed, essentially different from the fluffy and massive fancy bird now called a Cochin.

The original was, in fact, far less "Cochiney" and less bulky than at least one now existing other variety, which points the moral that poultry history is gradually repeating itself, and that other sitting breeds are likely to follow, through the agency of shows, the fancy development of the old Cochin. Let us bear in mind that breeding for excessive size and excessive feathering ruined the original of most of our sitting fowls.

The evolution of the Black Spanish from a purely utility bird, through the show-pen, to a fancy breed, and thence almost to extinction, is another example of the failure of "fanciers" to maintain utility while developing fancy points. The change (as with the Cochin) took nearly half a century to complete, and was due to the caprice of poultry fanciers and judges, who sacrificed utility by their show standards. Originally sprightly and hardy, rather small in size, with a justly great reputation as a prolific layer of large white eggs, the breed was widely distributed in most parts of England, especially in the South and West. Now the bird is said to have become delicate and leggy, and to have degenerated in laying powers to such an extent as to be no longer worth its keep.

And indications are not wanting which point to the conclusion that other, and more recent, varieties of this great Mediterranean family are surely following in the wake of the old Black Spanish. In these days things

move more rapidly than formerly, and changes in types and properties of fowls are effected by experts in a surprisingly short space of time.

There can be no doubt that the utility properties of poultry are their chief and most lasting value, and unless this fact is recognised by fanciers and considered by them in drawing up the show standards, they will be more than ever separated from the ordinary poultry-keeper, and as the gap widens the fact will become accentuated that no breed of fowl can do more than barely exist without the support of the utility man, who must always be the dominant factor, for probably 95 out of every 100 birds bred for exhibition are only good enough for utility purposes. Returns by our variety clubs, showing the total number of breeding stock kept by their members, the numbers of eggs laid and of chickens reared, would furnish some very instructive statistics.

There is ample scope for reform in the show standards of every breed with a view to the elimination of properties that are inconsistent with economic qualities; and it is important, in the interests of all concerned, that steps in this direction should be taken by influential poultry clubs as soon as possible, if present exhibited breeds are to be preserved. There is no impossibility in combining good appearance with utility. The point to be impressed on fanciers is the absolute necessity of starting the combination without delay.—Yours, &c.,

EXHIBITOR.

WITHHOLDING PRIZE-MONEY AT SHOWS.

To the Editor of the ILLUSTRATED POULTRY RECORD.

SIR,—This subject is one which refers to the great majority of shows in the United Kingdom—*i.e.*, the "small" shows, the shows at which that most gullible creature, the amateur fancier, is fleeced by remorseless committees in ways more specifically set forth in another part of this letter.

I have not had the opportunity of seeing the balance-sheets of many of these shows—therefore I stand to be corrected by my elders and betters—but of those that I have seen, the balance would in a great number of cases be on the right side if the prize-money could be paid out of the entry fees. To enable this to be done, the entries, according to the statistics given by Mr. Broomhead in his letter in your February issue, must average over eleven per class, and not many small shows can do that.

To ensure the prize-money being able to be paid in this way, I suggest a system which is a kind of modification of the sliding scale system. It is that the prize-money in each class should be paid out of the entry fees in its class. For example, the prize-money at a small show is generally 10s. first, 5s. second, and 2s. 6d. third, either for an entrance fee of 1s. 6d. or 2s. Taking the entrance fee for this example at 1s. 6d. for the above prize-money—as being a less advantageous illustration of this rule than 2s.—the prizes in a class of five entries would be 4s., 2s., and 1s. 6d. (giving the extra 6d. to the

third), while the prizes in a class of fifteen would be 12s. 6d., 6s. 6d., and 3s. 6d. If the first prize card is withheld owing to lack of merit, the prize-money to be divided proportionately between second and third (the withholding of a prize card would not in all probability be a thing of such frequent occurrence as at present, and extremely unlikely in a big class where the prize-money would be large).

The principal advantages of this system, besides the fact that it would place all small shows which applied it on a comparatively safe footing, are that it would effectually put an end to four evils against which there is a continual outcry in the Poultry Press. These evils are : 1. The withholding of merited awards owing to lack of entries or alleged lack of merit (nothing is more annoying to the owner or more misleading to others than this). 2. Touting for late entries (which appears to be very successful, judging by after results). 3. Amalgamation of classes. 4. Cancelling of classes.

The obvious reason why the practice of these evils would no longer continue under this system is that there would be no inducement to committees to follow it, since it would not be of any pecuniary advantage or disadvantage to them whether they had one entry or fifty entries per class. The disadvantage to the system, of course, is that a man likes to know that if he wins he will get a certain (?) sum. This leads one to consider for what purposes fanciers as a general rule show. There are, I take it, two main purposes. The first is advertisement and the second is prize-money. In the first case—*i.e.*, advertisement—this system would have the advantage over the old system of fixed (nominally) prize-money, because, as pointed out above, there would be no inducement to withhold merited awards. The second case—*i.e.*, prize-money—is where the old system appears to have the upper hand ; but here again the exhibitor must bear in mind that, if entries come in well in his class, he stands to win more than he would under the old system. This fact, too, would induce him (if he was showing principally for prize-money, which is what we are dealing with at present), most unselfishly, no doubt, to persuade other fanciers to enter as well—in his class, of course.

Then of these two reasons for which fanciers show—*i.e.*, advertisement and prize-money—is not the former the stronger reason? I think it must be so, for if fanciers keep a strict account of their expenses of showing—remember, we are dealing with small show fanciers—they will find that in the long run showing is an expensive business, but quite necessary. "Yes," the opposers of this suggested system will say, "this is undoubtedly so, but under this system we shall be even more out of pocket." But if the Poultry Club were to make this system of prize-money a rule in all small shows (prize-money 12s. and under) where a guarantee fund was not provided, I do not think they would be out of pocket ; and, on the other hand, fanciers would have no hitherto unbeaten bird come home with a second prize owing to lack of entries or alleged lack of merit, no notice to say that the class they had entered for, and for which they had been preparing their bird for weeks,

had been cancelled, and no urgent appeal that "we average less than two per class," and no discovery on entering that the two have miraculously, and in the space of a day or two, turned into a dozen or more.

This system, with fewer open "small" shows and with more "purely radius, local, or members' shows," as suggested by Mr. Verrey in his letter in your February issue, to which I think might be added "limit" shows, would do a great deal to encourage the amateur fancier, and thus make poultry-keeping more popular.

If a show committee like to advertise full prize-money, by all means let them do so ; but if full prize-money is not paid, let them be well placarded in the Poultry Press, or, better still, let the disappointed fanciers club together and take legal proceedings, after which there is not much doubt but that in future these shows will be only too glad to shelter themselves under some such system as the one now suggested.

It is obvious that matters cannot go on as they are at present, and that a definite system must be settled upon by the Poultry Club, since it is clear that their rule "That at shows held under Club Rules no prizes be withheld, but the basis on which prize-money be paid be left to the discretion of the Committee of each individual show, the basis for the payment of same to be clearly stated in the schedule, so that prospective exhibitors know what to expect," has not met the case, since show committees apparently have no discretion.—Yours, &c.,

H. BUCKLEY RODERICK
(Member of the Poultry Club).

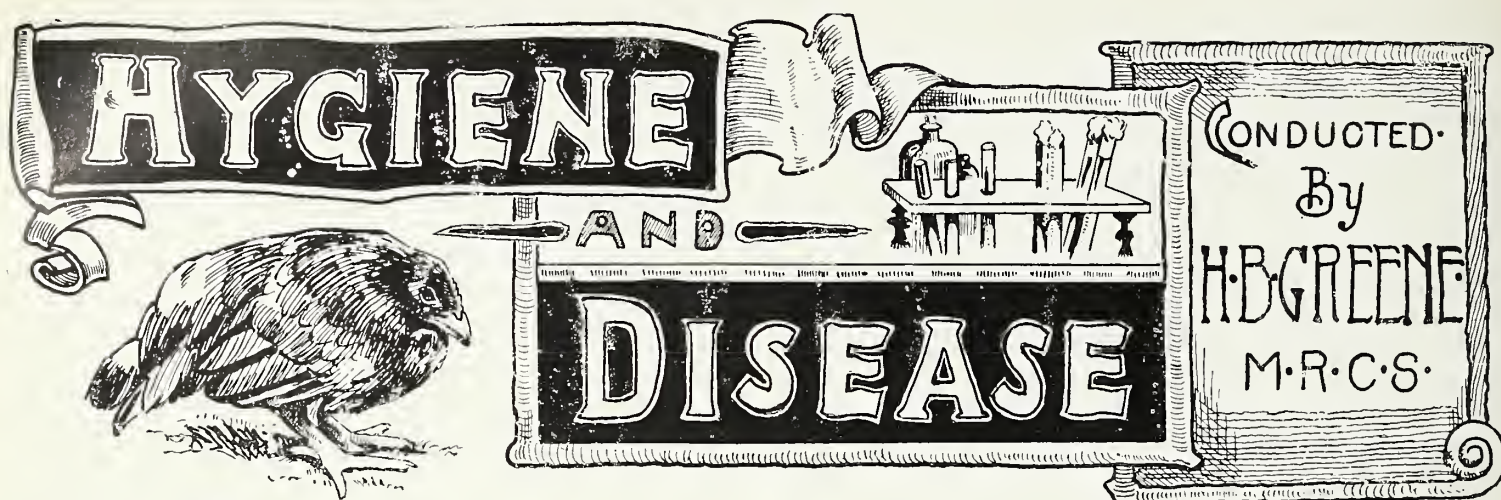
Goodig, Burry Port, R.S.O., Carmarthenshire.

Black Wyandotte Club.

During the last year Mr. W. Hunter Gandy, F.R.G.S., has retired from the post of hon. secretary and treasurer of this club, and the secretary's report in the Year Book for 1909 is signed by his successor, Mrs. Herbert Bury. The Year Book is a handsomely got-up publication, with an effective cover in black, gold, and red ; it is printed and illustrated by Mr. O. Hardee, of Chislehurst, whose excellent photographs of winning blacks give the work a quite distinctive character. The President, the Rev. J. W. A. Mackenzie, Mr. Bert Kirkman, Mr. Richard Cape and the Rev. E. Lewis Jones contribute short articles on the history and breeding of Black Wyandottes, and there is the usual information as to the club's doings during the past year.

Buff Plymouth Rock Club.

The annual report and balance-sheet of this club suggests that the breed for which it caters is going ahead very rapidly. A considerable increase in the club's membership is announced, and the balance-sheet shows a surplus of £12 13s. 7d. ; this in spite of the fact that the club show, held at Bristol, resulted in a loss. With an enthusiastic fancier like Mr. A. A. Fleming, the hon. secretary and treasurer, at the helm of this society, Buff Rocks should quickly increase their hold on popular favour.



POST-MORTEM EXAMINATIONS.

We have made arrangements by which post-mortem examinations of poultry and game can be effected for our readers upon the following conditions :

1. *The specimen is to be forwarded postage or carriage paid and securely packed to "Biologist," 297, Trinity-road, Wandsworth Common, London, S.W.*
2. *The fee of 2s. 6d. (stamps will not be accepted) must be remitted with each specimen and a letter giving particulars of feeding and housing, or any symptoms which were observed before death.*
3. *Birds should on no account be addressed to the office of the paper. If forwarded there they will be returned to the sender.*

It is recommended that specimens be dispatched by parcels post, where practicable, and as soon after death as possible. A reply will be received by letter, defining the disease, its cause, treatment, and prevention.

Bronchitis of Poultry.

The heavy snowfalls, bitter cold winds and sloppy thaws experienced in nearly every part of the country have made the past month one to be unpleasantly remembered by all concerned with the rearing of chickens. Nor have laying stock escaped the effects of these adverse influences. Diseases of the respiratory organs—bronchitis in particular—have been unusually prevalent in many poultry establishments. This malady, more, perhaps, than any other, accompanies such inclement weather as has persisted for the last six weeks. The only hope of minimising its risks is to provide fowls with a sheltered, dry scratching-shed, a little extra grain buried in litter to keep them busy, and roosting-places secure from leakage and draught. If a shed or barn is not available, it is better to keep birds penned up, rather than turned out to paddle in snow or wet ground. The onset of bronchitis is generally sudden and not difficult to recognise in a fowl. The breathing is laboured and quickened, there is a frequent noise like a sneeze, but which is in reality a cough, and each respiration is marked by a cooing, wheezing, or sometimes rattling, occasioned by the passage of air through bronchial tubes swelled by inflammation and blocked by mucus. This sound can be often heard if the roosting-house is entered after the inmates have gone to their perches and all is quiet. And if the ear is placed to the back of a bronchitic

fowl at the point where the wings join the body, the sound is still more distinct. Other signs are, darkening of the comb and wattles, which become almost blue-black as the disease becomes more acute, closed eyes, a slight discharge from the beak, which, however, is not noticeable in the earliest stages, ruffled plumage, refusal to eat, inability to fly to the perch, and exhaustion from which the bird gradually sinks on its side, or dies in a convulsion from slow suffocation. The disease need not be fatal if noted early and properly treated. The sufferer should be at once placed in a straw-lined hamper in a kitchen, greenhouse, or other room where the temperature is higher than 60deg., and kept there until quite recovered. It should be fed by hand with soft food or oatmeal, bread or biscuit-meal moistened with milk, raw egg or meat broth, and it much exhausted 10 or 15 drops of brandy may be added. Later, as improvement takes place, boiled wheat or pearl barley can be included. Medicinally, 10 drops of ipecacuanha wine, three grains of carbonate of ammonia, and a tea-spoonful of glycerine mixed together in a small pellet of soft food, and given every three or four hours, is an effectual remedy, but a warm atmosphere is essential to the treatment.

Water for Chicks.

Superstitions die hard, and there are some in connection with the rearing of chicks that are yet far from dead. One of these is to the effect that the newly hatched chick requires no water, and can be most successfully reared when deprived of that which at other periods of its life is deemed an indispensable necessity. How such a preposterous notion ever obtained a footing is remarkable ; that there are still some persons who believe it is yet more so. For water fulfils more than one useful function. As the liquid factor in blood it helps to dissolve and convey food to every part of the body, assisting at the same time in removing the harmful waste products ; it keeps the system at an equal temperature by evaporation, takes an important part in the formation and deposit of fat, and keeps the growing cells bathed in a liquid nutriment ; and lastly, it is the vehicle by which they are supplied with those mineral salts, so necessary to the growth of feathers and bone, which are held by water in convenient solution. When,

therefore, we are asked so frequently at this season if chicks should be allowed water to drink, our answer is always in the affirmative. That chicks are more prone to diarrhoea when it is allowed is an argument sometimes advanced against its use, but the ailment is not caused by water; the cause is to be sought in impure water that has been allowed to become so through the carelessness or laziness of the attendant. As well might it be argued that since sour food also causes diarrhoea, therefore chicks should be reared without food! Let pure water, then, be always accessible, keeping an eye—or, rather, the nose—on the drinking fountain, and the chicks will show quicker growth and be healthier than if kept on a system, the cruelty of which is more than questionable.

Disease in North Wales.

We have been informed that disease in an epidemic form is unusually prevalent just now among poultry in North Wales, notably in Radnorshire and Breconshire, farmers in some instances having lost every fowl. Except that the disease is vaguely stated to be of enteric character, and not having yet had the opportunity of practically investigating it, we are unable to do more than conjecture that it is probably the same variety of contagious enteritis that was so rife in Essex and East London last autumn. On that occasion we cautioned our readers who might be contemplating purchases from the infected districts to be careful to isolate the newly acquired stock on arrival for at least four or five days, to guard against the possible importation of contagion. It may not be out of place to repeat the warning, for if we are right in suspecting that the epidemics are the same, our Welsh friends are troubled with the most fatal, infectious, and easily acquired of all poultry maladies.

COMMON ERRORS IN THE DIETING OF POULTRY.

BY H. B. GREENE, M.R.C.S.

IT has been often urged as an argument against the system of feeding poultry "by ratio" that the method is ultra-scientific, involves too much calculation, is, in fact, too abstruse for the average type of poultryman, and too exacting in its demands for these latter days of hustle and hurry.

Less than twenty years have elapsed since it began to be recognised, at first by the agricultural experimental stations of America, and a little later by the poultry Press and agricultural colleges of this country, that to farm poultry in order to obtain the maximum profit with the minimum outlay it is essential to study very precisely what proportion of the group of food constituents termed "albuminoids," as compared with that group included in the terms "hydrocarbons and fats," was required in the daily ration of a fowl, so that as nearly as possible without waste, injurious surplus of the one group or deficiency of the other, the productive energy of the bird may be employed without detriment to its

health and with profit to its owner. This principle governs the successful feeding of poultry, and no poultryman who neglects or scorns to make himself practically acquainted with its advantages can be said to have made the most of his opportunities. Looked at from the point of view of immediate profit alone, a well-balanced ration favours economy in food-stuffs, abundant and rapid returns in eggs or flesh, whichever may be the desired aim, and an absence of those forms of disease—and they are not a few—that surely follow an ill-chosen or haphazard food supply.

It will be no part of our object here to furnish a dissertation on feeding "by ratio," or even to touch upon the many combinations in which the most commonly used food-stuffs can be arranged to form a perfectly satisfactory daily ration. These things have now for long been treated of in current poultry journalism, and no handbook likely to be of real use to those who consult it, fails to contain some explanation of the system. We do not, therefore, attempt to explain how to feed, but how *not* to feed, and, taking only those simple food-stuffs that are best known and most universally adopted in poultry culture, we shall try to point out how, either through ignorance, as in the case of the novice, or through carelessness in that of the experienced hand, the abuse of what, generally speaking, is a wholesome poultry food may lead to disease and loss of stock.

Assuming that the reader has made himself to some extent familiar with the elementary knowledge relating to diet "by ratio," he will be prepared to accept that every food material combines in some proportion nitrogenous elements (albuminoids), fats, hydrocarbons, mineral salts and water; that every food will depend for its nutritive value upon that proportion; and that, omitting the consideration of the mineral salts and water, which need not be taken into account when estimating a food value, the proportion of nitrogenous elements to the combined fats and hydrocarbons should be roughly as 1 : 4½ or as 1 : 5, if it is to be sufficient to supply the needs of, let us say, a resting fowl. For egg-production an albuminoid ratio of 1 : 3½ is called for, and a like increase in the albuminoids must be made in feeding growing chicks. And since all grains and meals contain these elements in different degrees, it is extremely easy to draw up a disastrous dietary. Moreover, a diet that would be quite suitable for a laying hen will not meet requirements if continued when the bird has ceased laying and gone into moult.

The most common error of all in the dieting of poultry is that of overfeeding. By this is meant not the undue presence in excess of any particular component in the ration, but a surfeit in bulk. The fowls receive more food in the day than their bodies require for the healthy performance of all their functions. The result is to lay a serious tax upon the digestive and excretory organs, and these become enlarged and congested. Fat is laid down around the gizzard, intestines, oviduct, and heart. Laying is effectually stopped, the birds become heavy, sluggish in their movements, and capricious in their choice of food. From the number of organs that

may be involved as the result of overfeeding in bulk, it is readily understood that death may come in many different ways. Not an uncommon one is an apoplectic seizure, for although apoplexy frequently runs in a strain or family, overfeeding is almost always the exciting cause. This error is most frequently committed by those commencing poultry-keeping in a small way, and the victims are adult fowls rather than chickens, for it is not an easy matter to overfeed a growing chick, provided the ratio is properly calculated. If it were possible to estimate the number of poultry that die annually from overfeeding, the total would be astonishing, and the influence these losses exert in discouraging small fanciers impels many to relinquish their hobby. "Fowls do not pay to keep" is an oft-repeated saw: certainly it does not pay to overfeed them.

The converse mistake of feeding them insufficiently is much less often indulged in. And here we again mean feeding insufficiently in bulk. Such treatment meted out to laying fowls can only be prompted by gross ignorance of poultry-keeping or else culpable neglect. Chickens from one to two months old are frequent sufferers when the meals are few and far between. Emaciation, anæmia, and death from slow starvation are the outcome, and, when opened, the gizzards and intestines will be found to be shrunken, white, and empty.

A sustained surfeit and short allowances of food are, however, merely quantitative errors in dieting. We shall see, as we proceed, that nearly all kinds of grain or meal used as food for poultry possess some quality or food-element which, if permitted to predominate in the daily ration, is likely to bring about results quite as detrimental to life as those for which overfeeding or starvation are accountable.

The choice of foodstuffs abounding to excess in carbonaceous elements—such foods as maize, barley, and their ground meals, potatoes, rice, bread, hempseed, rye, and animal fat—is the next most prevalent dietary blunder. And it is one that exerts a very unfavourable influence on the profits of egg-farming. Not that we mean to imply for a moment that any of these foods need be banished from the poultryman's storeroom. Each has its own peculiar value when used in combination with other balancing food factors according to the demands of season and circumstance; but the analysis of every one of them proclaims their abundance in fats and hydrocarbons to be so great that we need no knowledge of the higher mathematics to realise, when they mainly form the diet to the exclusion of albuminoids (oats, meat, insects, &c.), that the excess of fats and starches forced upon the system cannot be assimilated nor even digested, while the subject is at the same time being starved in other directions for want of nitrogen. Those who fatten poultry for market rightly rely on the carbonaceous foods for rapid fat formation, but then the fatter works to attain a particular end in a given time and brings his experience and nicety of judgment to bear upon his art, so that the bird is killed at that precise moment when the system is hovering between

health and disease. His is an abnormal process of feeding which, if adopted for more than three weeks, or even less with laying or moulting fowls, is certain to end in disease. And the disease usually associated with this particular dietary error among grown fowls is hypertrophy—or enlargement—of the liver. In a later stage that organ becomes fatty (the *foie gras* of the famous Strasbourg *pâté*) and finally loses its functional activity by death of its substance or by atrophy. Probably some 8 or 9 per cent. of all poultry dying of disease succumb to this malady, and the mortality rises in the moulting months, August, September, and October.

For laying hens will resist the effects of such malnutrition much longer than those that are resting or moulting, since the formation of eggs acts as a safety valve by using up some of the surplus fats and starches. They are, on the other hand, more liable to accidents of the egg passages, sustained through pressure upon those parts by the fat-laden gizzard and intestines; even if they steer clear of these calamities, a large yield of eggs cannot be looked for when the normal action of ovary and oviduct is impeded by masses of fat. But it is sometimes noticeable that of a pen of hens and a cockerel so treated in a confined run, the male bird is the first to become diseased and die. The explanation is that he is denied the short respite enjoyed by the egg-producing hens, since in his case the fats, resulting from the excess of carbonaceous food elements, commence to be laid down and accumulate at once instead of being diverted to the egg factory. The death is often sudden and is attributed wrongly in many instances to apoplexy. In reality it will generally be found due to an enlarged and fatty heart occurring as secondary changes to those which have taken place in the liver, and many a fine stock bird is lost in this way. Although it will be appreciated that a diet can be easily put "out of balance" by any of the fat-forming foods, maize and barley are undoubtedly those answerable for the most damage. The advance in price of wheat some two years ago still obtains, and has compelled the poultry industry to fall back upon maize and barley as cheaper substitutes. Coincidentally, there has seemed to be a tendency in certain quarters to commend the use of maize as being not nearly so harmful as it has often, and, we think, rightly, been described. On both these points we are emphatic in stating our position. Although we recognise that on a wide open range, on which insects are to be picked up in abundance, or where runs are in bleak, exposed situations, and, again, when the dietary is skilfully planned and daily varied, the inclusion of maize and barley is justifiable, we have long held the opinion that fowls kept under restricted conditions on small spaces, especially if fed on the go-as-you-please method, are much more likely to be injured than benefited by maize and barley. And there is much practical evidence to support this view. In almost every instance where we have had the chance of examining fowls that proved to have died of enlarged or fatty livers, it has transpired, except in those cases where there has been mere over-

feeding in bulk, that they have been largely fed on maize or barley. If, moreover, these grains are substituted from motives of economy for wheat, the money thus saved will certainly not compensate the poultry-keeper for the loss by disease of 8 per cent. of stock nor make up for the diminishing supply of eggs from causes already mentioned. Even at its present inflated price, wheat should not be passed over as too dear a food, and if economy must be practised occasionally, sound oats, dari, French buckwheat, and good biscuit meal present a variety of foodstuffs beyond which there is no need to look.

Chickens, if fed without regard to their necessary albuminoid ratio, which in other words means that they are overcharged with starches and fats, will soon show a tendency to rickets, a disease marked by softening of all the bones, bending and weakness of the legs and backward feathering, but in the feeding of chickens the error generally takes the form of too much rice or potatoes, barley meal or Indian meal. And in dry foods, too, the mixture of grains is often made and sold to the public as a complete chicken food, without having the slightest claim to be considered anything but a pernicious one.

(To be continued.)

THE MARKETS & MARKETING

CONDUCTED BY    VERNEY CARTER

Sale of Foreign Poultry as English.

At the Manchester Police Court on March 3, Ernest Everton, a fish and poultry salesman, of Shudehill Market, in that city, was summoned, at the instance of the Board of Agriculture and Fisheries, for applying a false description to a goose and turkey when offering them for sale. The action was taken under Section II., Sub-Section 2, of the Merchandise Marks Act. The Stipendiary Magistrate, Mr. Edgar Brierley, heard the case. Mr. Wingate Saul, who prosecuted, said that the case was very important, as it was believed there was a large amount of foreign poultry sold as English. In December last, Mr. William Henry Carter, of Moss Hall Farm, Carrington, saw that foreign frozen poultry was being sold as English, and communicated with the Board of Agriculture. As a result, Mr. Carter accompanied an Inspector of the Board to the market on January 22 last, and on the defendant's stall saw a pile of geese on which was placed a large metal label inscribed "Prime-fed Cheshire Geese," and a row of turkeys above which was another label bearing the words "Prime-fed Norfolk Turkeys." It was stated that there were no other birds on the stall. The prices asked were 6d. per lb. for the geese and 8½d. per lb. for the turkeys. One of each was purchased, and the lad in charge of the stall made out an invoice with the

description which had been seen on the labels. On completion of the sale the Inspector said that they had been purchased for the purposes of a prosecution, when the lad acknowledged that they were not English birds, but the goose was Russian and the turkey Hungarian. As further evidence, on the goose was some printed paper in Russian characters. The birds were then taken to Mr. Muirhead, who pronounced them to be frozen foreign goods. Mr. Saul asked for a substantial penalty, as unfortunately the offence was carried out in a wholesale manner all over the country, and it was a serious fraud upon the public.

The Stipendiary Magistrate: And a fraud upon the British farmer.

Evidence was given in support by Mr. W. H. Carter and Mr. Battlebury, Inspector of the Board of Agriculture.

Mr. W. R. W. Murray, who appeared for the defendant, said that in face of the invoice he could not contest the case, but submitted in mitigation that the defendant was not at the stall himself, or the offence would not have been committed. He claimed that Mr. Everton did sell Cheshire geese and Norfolk turkeys, and that these labels had been attached in error.

Samuel Everton, the boy who sold the birds, said the labels were hung up above the stall, but in cross-

examination admitted they were on the birds sold, and that he knew they had been bought from Mr. McCann, a wholesale dealer in Manchester.

A fine of £5 in each of the two cases, with £2 2s. extra costs, was imposed.

English Poultry.

In the early part of the month trade in home-produced birds was not quite as brisk as it usually is at this period of the year. The excessively cold weather probably had something to do with this, by checking the demand for light diet. At the time of writing the demand has considerably improved, and salesmen are eagerly inquiring as to where they can obtain supplies of good quality. There is a great shortage of birds of medium quality. Consignments that are arriving on the markets are inclined to vary much in quality, some of the birds being quite as old as is desirable; and the young chickens, what few there are, having had to mature during the last three or four months, do not reach that standard of excellence in meat qualities which is to be found in birds which, while maturing, have not had to contend with the same severe climatic conditions.

The Demand.

From February till May or June the demand for English poultry is much greater than the supply. During this period there is ample room and opportunity for producers greatly to increase supply and at the same time secure considerable monetary advantage to themselves. That demand is greater than supply during the above-mentioned period is proved by the very large quantities of foreign poultry which are disposed of during that time and by the high values realised. There is a feeling among many poultry salesmen that English produce will be much shorter this season, and in consequence they are holding larger quantities of foreign cold-stored chickens in hand than usual, in order to be prepared to meet the demand.

Foreign Poultry.

The imports under this heading have during the last three years shown a steady and considerable increase, as is shown by the figures given on this page, which are taken from the Board of Trade Returns for February, 1909. It will be seen by these that the principal increase is from Russia, and that the quantities received from America show a falling-off, the last being probably attributable to the fact that increasing demand in the United States has improved the local price. To America must be given the credit of having to a very great extent revolutionised the whole of the English trade in cold-stored chickens by the excellent methods she adopted of grading, packing, and marketing. Importers of Russian poultry, in order to keep pace with America, had to adopt better methods, and now they grade their better-class birds in boxes of a dozen weighing 24lb., 27lb., 30lb., 33lb., 36lb., 39lb., and 42lb. per box. The weight which sells best on the

London markets is the 33lb. grade 2¾lb. bird. The rougher quality of Russian chickens are packed in cases holding from 40 to 110 birds per case. Last year a trial was made in fattening birds in Russia on the Sussex and Surrey principle, and birds up to 7lb. in weight were produced and sent over here, but the venture proved a failure, as the birds did not realise sufficiently good prices.

Imports of Poultry.

Until the setting up of cold storage plants in Russia a few years back, no birds were killed till October or November, as then the birds could be naturally frozen, packed, and put into the cold rooms on board ship. The drawback to this method was that there was such a large percentage of old birds. Now the merchants buy earlier and place direct into cold chambers, with the result that we receive younger and tenderer birds.

Russia sends only her best qualities to this country, as she has markets at home for all her inferior produce, owing to the poorness of her peasantry.

The following are values of the Imports of Poultry during February, 1907, 1908, 1909 :

	1907. £		1908. £		1909. £
Russia	35,673	...	107,153	...	133,488
France.....	3,874	...	6,619	...	6,750
Austria Hungary	4,808	...	4,862	...	7,298
United States of America	40,267	...	30,865	...	17,073
Other Countries.....	15,927	...	12,396	...	10,852
Total.....	£100,549	...	£161,895	...	£175,461

Trade in Foreign Eggs.

From the Board of Trade Returns for February we learn that the quantity of eggs received from foreign countries was nearly 13 millions of eggs less as compared with the corresponding period of 1908, but that their value was £9,476 greater. The average value of all foreign eggs imported into this country for the two months January and February, 1909, is 9s. 9¼d. as compared with 8s. 5¾d. for the corresponding period of 1908.

Imports : Average values, January and February, 1908 and 1909.

	Jan. and Feb., 1908.		Jan. and Feb., 1909.	
	Per Gt. Hd.		Per Gt. Hd.	
	s.	d.	s.	d.
Russia	7	9¾	9	2½
Denmark	10	3¾	11	6¾
Germany	7	9	9	8
France	8	10½	10	3¼
Italy.....	9	3½	10	1½
Austria Hungary ...	8	0¾	9	2
Other Countries ...	7	1¾	8	7½

Average value ... 8s. 5¾d. 9s. 9¼d.

TABLE OF PRICES REALISED FOR HOME, COLONIAL, AND FOREIGN POULTRY, GAME, AND EGGS DURING MARCH.

ENGLISH POULTRY—LONDON MARKETS.

Description.	PRICES REALISED DURING THE MONTH.			
	1st Week.	2nd Week.	3rd Week.	4th Week.
Surrey Chickens	3/3 to 5/0	3/6 to 5/6	3/6 to 5/6	3/6 to 5/6
Sussex "	3/3 " 5/0	3/6 " 4/6	3/6 " 5/6	3/6 " 5/6
Yorkshire "	3/0 " 4/0	3/3 " 4/6	3/3 " 4/6	3/3 " 4/6
Boston "	3/0 " 4/6	3/3 " 4/6	3/3 " 4/6	3/3 " 4/6
Essex "	2/9 " 4/6	3/3 " 4/6	3/3 " 4/6	3/3 " 4/6
Poussin	—	—	1/4 " 1/6	1/4 " 1/6
Irish Chickens	2/6 " 3/6	2/3 " 3/0	2/9 " 3/9	2/9 " 3/9
Live Hens	2/3 " 3/0	2/3 " 3/0	2/3 " 3/0	2/3 " 3/0
Aylesbury Ducklings.	3/6 " 4/6	3/9 " 5/0	3/9 " 5/0	3/9 " 5/0
Ducks	—	—	—	—
Geese	—	—	—	—
Turkeys, English ..	—	—	—	—
" Irish	—	—	—	—

ENGLISH GAME—LONDON MARKETS.

Description.	Each.	Each.	Each.	Each.
Grouse	— to —	— to —	— to —	— to —
Partridges	—	—	—	—
Pheasants	—	—	—	—
Black Game	3/0 " 3/9	1/0 " 2/3	1/0 " 2/3	1/0 " 1/3
Hares	1/0 " 2/0	0/9 " 1/1	0/9 " 1/2	0/9 " 1/2
Rabbits, Tame	—	—	—	—
" Wild	—	—	—	—
Pigeons, Tame	2/6 " 3/0	2/9 " 3/0	2/9 " 3/0	2/9 " 3/0
" Wild	—	—	—	—
Wild Duck	1/0 " 1/9	1/0 " 1/9	1/0 " 1/9	1/0 " 1/9
Woodcock	0/6 " 0/8	0/6 " 0/8	0/6 " 0/8	0/6 " 0/9
Snipe	—	—	—	—
Plover	—	—	—	—

ENGLISH EGGS.

MARKETS.	Per 120.	Per 120.	Per 120.	Per 120.
LONDON	10/6 to 11/0	10/6 to 11/0	9/6 to 10/0	9/6 to 10/0
Provinces.	Eggs per 1/-	Eggs per 1/-	Eggs per 1/-	Eggs per 1/-
MANCHESTER ..	9 to 10	10 to 11	10 to 11	11 to 12
BRISTOL	1/0 per doz	1/0 per doz	1/0 per doz	1/0 per doz

FOREIGN POULTRY LONDON MARKETS.

COUNTRIES OF ORIGIN.	PRICES REALISED DURING THE MONTH.			
	Chickens. per lb.	Ducks. Each.	Ducklings. Each.	Geese. per lb.
Russia	0/9½ to 0/10	1/9 to 2/9	—	—
Belgium	1/0 " 1/0	—	—	0/5 to 0/5½
France	1/0 " 1/0	—	—	—
United States of America	0/10½ " 1/0	0/10 per lb.	—	0/9 to 0/11
Austria	0/9 " 0/9	—	—	0/9 to 0/9
Canada	—	—	—	—
Australia	—	—	—	—

IMPORTS OF POULTRY AND GAME. MONTH ENDING FEB. 28, '09.

COUNTRIES OF ORIGIN.	DECLARED VALUES.	
	Game.	Poultry.
Russia	£3,053	£133,488
Austria Hungary	919	7,298
France	38	6,750
United States of America	—	17,073
Other Countries	2,735	10,852
Totals	£6,745	£175,461

IRISH EGGS.

DESCRIPTION.	1st Week.	2nd Week.	3rd Week.	4th Week.
	Per 120.	Per 120.	Per 120.	Per 120.
Irish Eggs	10/3 to 10/6	9/4 to 9/8	9/4 to 9/9	8½ to 8/6

FOREIGN EGGS.

DESCRIPTION.	1st Week.	2nd Week.	3rd Week.	4th Week.
	Per 120.	Per 120.	Per 120.	Per 120.
French ...	11/6 to 12/6	11/6 to 12/6	10/9 to 11/6	10/9 to 11/0
Danish ...	10/6 " 11/6	10/3 " 11/3	10/3 " 11/3	9/6 " 10/0
Italian ...	11/0 " 12/0	11/0 " 12/0	11/0 " 11/6	8/9 " 9/6
Austrian ...	9/6 " 10/0	9/6 " 10/0	9/3 " 9/6	7/9 " 8/9
Russian ...	—	—	—	—
Australian.	—	—	—	—
Canadian..	—	—	—	—

IMPORTS OF EGGS.

MONTH ENDING FEB. 28, '09.

COUNTRIES OF ORIGIN.	Quantities in Gt. Hund.	Declared Values. £
Russia	9,612	3,578
Denmark	122,027	70,810
Germany	60,912	31,231
France	77,984	40,088
Italy	139,836	60,280
Austria Hungary	144,874	68,197
Other Countries	336,366	145,497
Totals	891,611	428,681

REVIEWS.

THE POSSIBILITIES OF MODERN POULTRY-FARMING. By J. Stephen Hicks and Wilfrid H. G. Ewart. The Cable Printing and Publishing Company. Price 1s. net.

THE contents of this volume originally appeared in *Farm Life*, and, according to the "Foreword," the idea of republishing in the present form is "to induce, if possible, the poultry-keeping section, the farming section, and the small-holding section of the agricultural community to regard poultry-farming as a business, as a business holding out considerable possibilities, as a business demanding business-like methods entirely, but *not* as a business out of which fortunes can—or even have been—made." The latter warning is, and probably will never cease to be, necessary; and it comes with the more cogency from the authors of this book, since they are both practical farmers who have been through the mill. Poultry-farming is here divided into four branches dealing (1) with poultry as an adjunct to general farming, (2) with the higgling and fattening business, (3) with the production of laying strains, and (4) with the breeding and exhibiting of pure breeds. While a good deal of attention is devoted to the Fancy business, as containing "the most tempting and the most promising features," some of its absurdities, such as the Modern Game, are not lost sight of, and the aim of the authors seems to be to do justice to the work of the Fancy in the past rather than to condone its later freaks.

LLOYD'S POULTRY BOOK. By Alfred Crafer. *Lloyd's Weekly News*. Price 3d.

THE amateur poultry-keeper seeking for a reliable *vade-mecum* will find this booklet a wonderfully good investment at the price. It may be said to be written wholly from the utility standpoint, the single page on breeding for exhibition merely enumerating a few elementary principles; and it is not too technical. The historical and descriptive dictionary of different breeds covers the necessary ground; and there are short but essentially practical chapters on Natural and Artificial Hatching and Rearing, and on common diseases and how to cure them. Ducks, geese, turkeys, and guinea-fowls are briefly dealt with at the end of the book, and it contains an adequate index.

WHITE WYANDOTTE CLUB.

WE have received the YEAR-BOOK of this Club for 1909. From the Presidential letter onwards it contains a good deal of interesting reading matter relating to this popular variety. The Hon. Secretary's report states that 59 new members were elected in 1908, bringing the total membership—after deducting sundry resignations—up to 178. A *résumé* of the results of the Club Show, held at Bristol, is contributed by Mr. G. H. Richards, and "W. M. E." is responsible for a note on "Type and Colour."

RHODE ISLAND REDS.

IN view of the interest that has recently been manifested on this side in the famous American breed, "The Rhode Island Red," the booklet about this fowl, which has been compiled and issued by Mr. Walter Sherman, of Fairport Farm, Newport, R.I., comes opportunely to hand. Mr. Sherman is a prominent fancier and breeder of the Reds, and his historical survey of their origin and development, including a rejoinder to certain critics of the breed, is very much to the purpose. Good utility strains are what the author does his chief business in, and his book includes several capital photographs and coloured plates of these birds, representing, he explains, not artificial fanciers' Reds, but those seen by the thousand on Rhode Island.

A HANDY BOOK AND CARD.

A HANDY booklet, just issued by the Great Northern Railway Company, should prove extremely useful to fanciers, agriculturists, horse and cattle dealers, sportsmen, &c. It gives particulars of the principal dog and poultry shows, horse and cattle fairs, agricultural shows, and racing fixtures to be held during 1909, in addition to a large amount of information as to rates, fares, &c. Copies may be obtained gratis on application to any Great Northern station or office, or from the Chief Passenger Agent, King's Cross Station, London. The company has also issued a pocket-card giving a list of the principal agricultural shows. This can be obtained from the Goods Manager, King's Cross Station.

SOME NEW APPLIANCES FOR PEDIGREE POULTRY-BREEDING.

BULLETIN No. 159 of the Maine Agricultural Experiment Station (Orono) contains particulars of some new appliances for use in working with pedigree poultry. These consist of a trap-nest, an egg-distributing and turning-table, pedigree incubator baskets, for use instead of pedigree-trays for hatching, and a chick leg-band bender. It will be remembered that the University of Maine is carrying out some exhaustive investigations in the breeding of pedigree layers, and the appliances enumerated above have been designed with a view to making the records more accurate and systematic. Particulars are also given of a system of keeping pedigree records. The method suggested is that of the use of "mating numbers," and, as is pointed out, this idea was proposed by Galton in 1903 ("Nature," Vol. 67, pp. 586-587) for keeping human pedigree records. Facsimiles are given of the mating-sheets in use, and they appear to be most carefully and methodically designed. As is stated, "The purpose of this mating-sheet is to show in one place the individuals which comprise a given mating and all the progeny which arises from that mating."

THE YORKSHIRE POULTRY FARM.

WENSLEYDALE, with its diversified and beautiful conditions, has done more than produce a famous cheese ; it has been the birth-place of men who have distinguished themselves in various spheres of life. Its health-giving air and the difficulties inseparable from a constant struggle with Nature, due in some measure to its elevation, have evolved a shrewd, virile, earnest, intelligent, hard-working race, unspoiled by too much association with the great centres of popu-

munity as a blight, saw the possibilities in poultry-keeping ; and he turned his attention in that direction, at first upon his father's farm, next upon his own place in his native vale, and then at Sowerby Grange, which has been his home and sphere of operations for the last sixteen years. The success which has attended his labours, attained by development of the economic merits of the domestic fowl whilst maintaining its purity of race, and by supplying a large number



THE MAIN AVENUE 600 YARDS LONG.

[Copyright.]

lation, yet near enough to them to feel the stimulus of modern influences. On one of the upland farms near Aysgarth was brought up Mr. Simon Hunter, whose name is known all over the world as that of the owner of one of the largest breeding poultry farms in England—namely, Sowerby Grange, three miles out of Northallerton, and under the lea of the Hambleton Hills. Mr. Hunter was one of those younger farmers who twenty-five years ago, when depression in agriculture struck our rural com-

of people at moderate prices rather than by catering for the few who would pay big rates, has been very great indeed. This is a breeding farm, production for market having little to do with its scope ; but without such places, whence could be drawn the stock required by farmers and others, the present position of the poultry industry would be very different from what we see it in this year of grace 1909.

Mr. Simon Hunter's example has done much to stimulate production in the North of England.

TRADE SUPPLEMENT

At one time there was prevalent an opinion that climatically the Southern sections of Britain were more favourably situated than the North, and that, therefore, it was better to leave the work to those living under what was thought to be happier conditions. Such an idea has been long exploded,

under such conditions must contain vigorous germs, and chickens hatched there die if they are feeble. Probably not a little of the success of Mr. Hunter's business is due to the vigour of his stock, resulting from its natural conditions. That the stock is vigorous is evident at once.



ACROSS THE PENS.

as it never had any justification. Throughout not only the great county of Yorkshire, but in the old kingdom and Northumbria and Scotland the advance of poultry-breeding has been enormous, and has contributed considerably to the modern development of agriculture, though not nearly to the extent which will yet be seen. A further fact is that not merely is this growth seen on farms, but in connection with amateurs and industrial workers, who form an important factor in the national food supply, even though supply of household requirements form the leading object. It is not too much to say that a large part of Mr. Hunter's business has been in connection with this section of the poultry community.¹

The Yorkshire Poultry Farm is admirably situated so far as position is concerned. The land, consisting of forty-five acres, is good in its nature; it is fairly level, yet sufficiently elevated to secure excellent drainage, which does much to keep it sweet. Sheltered to some extent on the east by the hills already named, it is open to the north and south respectively. The "wild north-easters" which come sweeping from the ocean not many miles away are exhilarating to animals strong enough to stand them, but trying indeed to the weaklings. Hence the first essential consideration is vigour of stock. Eggs produced

Healthy in the extreme, bright and active, happy in their large runs or pens, with abundance of space, grass untainted, they are different indeed from some of the almost anæmic birds which are



A COPSE FOR SHELTER.

[Copyright.]

TRADE SUPPLEMENT

to be met with at times kept under conditions which are antagonistic and not conducive to health. Here, at any rate, the temptations to overstocking the land, with all its concomitant evils, are entirely absent, as there is abundance of space, and it is recognised that whilst intensive production is necessary on marketing plants, it is undesirable for the breeding of stock birds.

Seventeen breeds of fowls and one of ducks comprise the stock at Sowerby Grange—namely, Black Minorcas, four varieties of Leghorns, Anconas, Houdans, four varieties of Wyandottes, Barred Plymouth Rocks, Langshans, three varieties of Orpingtons, Indian Game, and Indian Runner Ducks; but Leghorns, Buff Orpingtons, and White Wyandottes bulk largest. At a breeding farm the number of pens kept of each variety must have due relation to their popularity

fruits of his efforts are apparent. In fact, some of the specimens were remarkably good in the features which are regarded as of primary importance in the show-pen, yet not at the sacrifice of the true individuality. Differences there may be in opinion as to this breed or that, and as a business man Mr. Hunter supplies what is in demand. For instance, he keeps both original and modern White Leghorns. But, so far as the general stock is concerned, type is very marked throughout. It was explained to us by Mr. Richardson, who has been associated in the management of the farm for several years, that, although Mr. Hunter has never exhibited, he has always kept high-class show birds, aiming at what is too often forgotten—namely, the improvement equally and conjointly of racial character and profitable qualities. That the



THERE ARE NO FEWER THAN 200 PENS ON THE FARM, THE MAJORITY OF WHICH OCCUPY A QUARTER OF AN ACRE.

and demand for eggs or birds. Hence, as fashion rules so much, there can be no fixity in this respect, and changes of relative numbers are constantly made. The policy adopted, therefore, has been to keep whatever breeds are in demand, and with the changes which are inseparable from modern conditions the Yorkshire Poultry Farm has responded by meeting the requirements of breeders of all classes. At present Buff Orpingtons, White Wyandottes, and Black Leghorns appear to be in the ascendant. That, however, does not matter. The chief consideration is—what are the birds like? On this point our observations were completely satisfactory. Type has from the first received Mr. Hunter's attention, and the

former point has been secured is evident from the fact that thousands of birds sold and of birds hatched from eggs produced here have won prizes, and a large number of fowls exported have taken high rank in the Colonies and abroad. Upon the farm are about 2,000 hens with the necessary males, and in addition nearly as many are out on neighbouring farms. It will be seen, therefore, how extensive are the operations. Last season upwards of 6,000 sittings of eggs were sent away. In fact, the "egg-for-hatching" trade is the basis upon which the business has been built, though the trade in stock birds has grown largely of late years, and is still growing.

Some years ago Mr. Simon Hunter undertook

TRADE SUPPLEMENT

a world tour in which he visited America and the leading British Colonies. As a result a large and valuable export trade has been built up. In this direction he was one of the pioneers, although prior to that time considerable business was done by other breeders, but principally with show birds, which were the advance guard of the greater army yet to follow.

Whilst not a show place, but one designed essentially for practical purposes, the Yorkshire Poultry Farm is well laid out both for convenience in working and for the welfare of the birds. It is evident that at the outset Mr. Simon Hunter realised the danger of overstocking the ground, and planned the farm on permanent lines. The individual pens, in order to prevent intermixing, must have separate houses and runs, and, as foxes abound in the district, protection was essential. For the latter the farm is enclosed by a fence of wire netting, surmounted by strands of barbed wire, and for the former each lot of birds has its own park or run, divided from those adjoining by netting and boarding. Of these plots there are no less than 200, the majority of which occupy a quarter of an acre, but others are of half an acre. These are formed in blocks with wide avenues between. One such avenue is 600 yards in length, with runs on either side. In each run is a house of modest size, sufficient for the purpose. Many of these have raised floors, but that form is being discarded in those built recently. Altogether there is nearly six miles of wire netting on the place, and some hundreds of gates facilitate access from one run to another, as well as to the avenues. We were much

impressed by the excellent order kept, and the use of separate houses rather than long ranges is to be commended, as there is less danger of tainted ground. In fact, the condition of the grass throughout is proof positive that the manure produced has not been in excess of the capacity of the soil to utilise it. To help further in that direction a large number of fruit trees have been planted, but not at all thickly. A lack of shelter may be the chief criticism, but in the north too much sunshine is not often experienced. As shown in one of our views, to afford protection to birds of delicate plumage, such as whites and buffs, spinneys have been planted, wherein the birds can find cool shelter and natural food, and in these are placed nest-boxes, as the hens often prefer to lay there. The watering arrangements are excellent. A pump and tank on the highest part of the ground, with water conduits and openings in each run, supply that desirable element with the minimum of labour.

The rearing ground is near Mr. Hunter's residence, but additional space is provided in the wide avenues. Incubators are largely employed for hatching, and the egg capacity is nearly 1,000. Brooders are used for rearing, and natural methods are depended upon to a very limited extent. As the business is almost exclusively in eggs for hatching and stock birds, the usual appurtenances of a poultry farm are not in evidence. Taking it throughout, the Sowerby Grange Poultry Farm is practical in its character, excellent in its arrangements, well designed and conducted, and the quality of the stock thereon is very high indeed.



GENERAL VIEW—LONG AVENUE.

ANSWERS TO CORRESPONDENTS.

The Editor will be glad to hear from readers on any Poultry Topics, and all Queries addressed to the paper will be answered by experts in the several departments. The desire is to help those who are in any difficulty regarding the management of their poultry, and accordingly no charge for answering such queries is made.

Winter Egg-Production.

"Which is the best variety for winter laying, and when should the chickens be hatched?"—M. G. (Norwich.)

The General Purpose breeds are the best winter layers, particularly the Orpington, Wyandotte, and Plymouth Rock. The light varieties are of little service in this respect, producing the bulk of their eggs during the spring and summer. The chickens should be hatched towards the latter part of February or during March. No definite date can be stated, for the rate of development varies so greatly, but, generally speaking, pullets of the General Purpose class can be depended upon to commence laying when about seven or eight months of age.

The Hen v. the Incubator.

"I am just starting poultry-keeping, and I should like to know whether it is necessary for me to have an incubator, or can I do my hatching by hens? I am away all day, and there is no one at home who is capable of looking after an incubator."—L. G. H. (Edmonton.)

Your question is extremely vague, as no particulars are given as to the extent of your operations, or which branch you are going in for. Without these particulars it is difficult to advise you. If, however, you are going in for early work then an incubator is essential, because sitting hens are so very scarce during the colder months of the year. When they are available they are scarcely to be trusted, as a sudden frost is always liable to cause them to forsake their eggs. If you do not intend to hatch till March or April you need not adopt the artificial method, as broody hens are then generally very plentiful. Your being away all day is no reason why you should not use an incubator, as a good machine needs very little attention. So long as you fill the lamp once a day and cool the eggs twice, which can be done first thing in the morning and last thing at night, nothing more is required.

Rearing Ducklings.

"I have read somewhere that ducklings for killing should receive no exercise. Is this so? I have a good stream, and always give my ducklings full freedom all day long, but they never seem to grow very quickly."—R. T. L. (Whitby.)

What you read is quite correct, and ducklings intended for killing should have as little exercise as possible. The less they move about the more rapidly do they grow. It is true under these circumstances their health is liable to suffer, and such treatment would be fatal for stock birds, but as they are to be killed when eight or ten weeks old no harm ensues. They should be closely confined in a small run from the very first, which requires to be kept scrupulously clean, the straw being changed every day. With good feeding and suitable treatment Aylesbury ducklings should weigh from 4lb. to 5lb. when eight or nine weeks old.

Preserving Eggs.

"I shall be grateful if you will kindly inform me which is the best method of preserving eggs?"—H. A. S. (Ealing.)

The subject is treated very fully in this issue of the ILLUSTRATED POULTRY RECORD.

Sterile Eggs.

"Several infertile eggs have been produced lately by my hens. They are well fed and housed, have full freedom, and are given every attention. My breeding-pen consists of 18 hens and a cock. They are all Buff Orpingtons and White Leghorns. I shall be obliged if you will be so good as to tell me why my hens are laying infertile eggs."—S. G. (Killarney.)

The reason is pretty evident—you have far too many hens with the one male bird. Eight or ten is quite sufficient at this time of year, and you should at once either halve your pen or else run two male birds with them. The latter plan sometimes answers satisfactorily, though as a rule the cocks fight, frequently causing one another serious damage. If you have accommodation, we should advise forming two separate pens.

Short Replies.

M. T. (Dublin): Yes.

H. M. S. (London): During August or September. Preferably the former month.

E. M. T. (Aberdeen): (1) From 7s. 6d. to 10s. 6d. per dozen. (2) At least £1 1s. (3) 1903.

S. M. (Paris): Buff Orpingtons or White Wyandottes.

E. R. (Buenos Ayres): We are making inquiries, and will let you know as soon as possible.

L. B. S. (Toronto): We have forwarded your letter to the firm named.

G. B. S. (New York): (1) The first or second week in October. (2) The third week in November. (3) About a month previously.

M. B. S. C. (Edinburgh): Two bushels or half a sack.

Feeding Geese.

One can afford to feed geese pretty well during the next few weeks, for eggs are now wanted in as large numbers as possible, as the sooner the goslings are hatched the larger will they be next autumn and winter when killing time arrives. A good mixture for use at the present time consists of three-parts cooked potatoes, two middlings, one bran, and one bean or pea meal. In the afternoon a mixture of barley meal and middlings in equal proportions is suitable. Small potatoes make an excellent food for stock geese, so long as they are cooked, but raw they are of little value. Generally speaking, maize should be avoided, though if the weather is very severe a little is beneficial.—*Agricultural Gazette.*

NOTES FROM CORRESPONDENTS.

NOTES FROM WALES.

BY A. T. JOHNSON.

THE most promising attempt towards bringing producer and consumer within reach of each other that Wales has seen for a very long time is that being made by the Deganwy Poultry Co., which, although only in existence a few months, has already done some excellent work. This new institution is impersonated by Mr. Joseph Carson, who has had much experience of the wholesale egg trade in Ireland, as well as of retail work in Manchester. He is therefore well equipped with that knowledge which is essential to success in any attempt to organise the egg production of North Wales. So far Mr. Carson is decidedly pleased with "Welsh eggs," and so are his customers in London and Manchester, who are paying excellent prices and asking for more. The Company is wise in having nothing whatever to do with eggs which are not absolutely reliable, and the problem of buying the "new-laid" only is entrusted to Mr. Carson (as is practically the whole affair), who, it is said, "can smell one stale egg in a basketful"! The greatest care is taken in selection, grading, packing, &c., and everything is done so that "Welsh eggs" may realise top prices only. From the producer's point of view Mr. Carson's appearance in the country markets ought to be a welcome innovation, for eggs have gone up at a bound since he started buying, and never before have the farmers and others in outlandish places realised such prices. Of course there is much uphill work to do. The language must be contended with, and the Welsh peasant has no love for "an Englishman"—even if he happens to be an Irishman, as Mr. Carson is. So strongly, too, are custom and prejudice rooted in the Cymric heart that I have frequently seen country people preferring to sell their produce to the "local" dealer (too often a humbug and an autocrat in the matter of prices) rather than to the stranger who may offer at least 25 per cent. more. Still, this will go with time, and the progress made already (the average turnover of eggs alone in the early part of February was about 6,000 a week) is most encouraging, and shows how much better off everybody must be through organisations of this kind. I think that the Deganwy Poultry Co. has started a new and progressive era in Welsh egg-production, and if matters go on as they are going at present we shall soon see "Welsh new-laid" quoted at top figures in all our great markets.

The South Wales Branch of the Poultry Club continues to flourish under the Rev. E. Lewis Jones, but it is a pity the sister branch in the North should have been allowed to become practically defunct, which it undoubtedly is. Now there is nothing for it but a complete re-formation, and to attain this object I have been asked to act as hon. sec.

Although early March maintained its leonine repu-

tation, the early chickens are going on favourably in most parts, and eggs continue to hatch well. With the exception of a few districts the country is conspicuously devoid of suitable stock for the Easter markets, which are well worth catering for—even if they are only a "catch-crop."

BY T. R. EVANS.

The Cardiff and South Wales Poultry, &c., Club must be complimented upon the progress made during the past year, for at the annual meeting, held at the Law Courts Hotel, Mr. J. H. Bant, the hon. secretary and treasurer, was able to present a balance-sheet and report showing that the club was in a most flourishing condition, the balance in hand showing an increase of over £11 on the year's working. The balance in hand now amounts to £18; the membership is still on the increase, and although the club was only founded in 1903, it is to-day one of the largest societies in South Wales. It has never ceased to make headway from the commencement, and has year by year gained in numbers and influence, which result has been in no small measure due to Mr. Bant, who has proved himself to be an ideal secretary, and is, without question, the right man in the right place.

The East Glamorgan Agricultural Society has selected Aberdare as the venue for its next show, an influential local committee have been appointed, with Dr. Trevor Jones, High Constable, as chairman, a good guarantee fund has been raised, and the committee are fortunate in having acquired the necessary land at a merely nominal rental from the Aberdare Athletic Association. As there is a commodious grand stand erected on the ground, the committee will save this heavy item of expenditure, so that they commence under favourable conditions, and will undoubtedly (given a fine day) make the show a financial success. It is highly desirable that this should be the case, as the last show, held at Caerphilly, resulted in a big financial loss on account of the weather, the attendance being completely spoilt by the downpour of rain, with the result that their funds were reduced to a very considerable extent.

I understand that an invitation will be given to the "Royal" to hold its show in 1911 at Cardiff, and if the invitation is accepted, I am sure the City of Cardiff will rise to the occasion and do all that is possible to make it a financial success. On the occasion of the last visit of the "Royal" to Cardiff, I believe it more than paid its way.

New-laid eggs still keep at a premium in the colliery districts of Glamorganshire and Monmouthshire. In many places during December 2s. 6d. a dozen was easily obtainable, and now in March they are selling at seven for 1s., and the supply does not equal the demand. This should be an inducement to poultry-keepers to hatch their chickens at the proper time, so that they may, by proper attention to the growing stock,

get full egg-baskets at a time when eggs realise the most money. Back-yarders will find that there are many worse investments than taking up poultry, if only for the purpose of keeping the house supplied with eggs. The great evil of most back-yarders, however, is overcrowding; many do well with a pen of eight or nine, and success with a few leads them into keeping 20 or 30 when they have only accommodation for ten, with the result that disease sets in and, instead of there being a profit, there is a loss.

SCOTTISH NOTES.

BY A. M. PRAIN, J.P.

A CORRESPONDENT in Orkney sends me some interesting particulars regarding winter egg-production. Orkney, by the way, is forging ahead with its poultry. I have heard it stated on very good authority that the amount of money which goes into Orkney for eggs alone is more than the whole of the agricultural rental. Be that as it may, this correspondent has been adding to his bank account from his winter eggs.

Just a year ago I made a lecturing tour in Orkney, holding meetings in the more important centres and visiting many farmers and crofters. This correspondent absorbed a good deal of the information, and put it to practice as well. Formerly his hens were all housed in one compartment without light or ventilation, and far too small for the number of hens kept. As an experiment he built one or two colony houses, and put the birds in them, with the result that he doubled his winter egg-production from half the number of hens. The writer knows of another instance where both size and number of eggs were greatly improved within a fortnight of the colony house system being adopted.

When I am writing about these outlying islands I might as well mention that co-operation in marketing is spreading steadily, and with excellent results. The secretary of the pioneer society, which started in 1905, writes that five other societies have started this year. One has to travel over these islands to realise what the egg trade really means to the small crofters. In many cases eggs are the current coin of the district. So many eggs are exchanged for so much grocery goods. Co-operation is changing this rather primitive method of barter, as each member of a society receives *cash* in payment for whatever eggs may be sold. Indirectly, too, better business ideas are getting instilled into the people. It is a curious commentary on Scottish shrewdness that these outlying islands, usually supposed to be far behind the times, should be giving a lead to the rest of Scotland in the system of marketing that has done so much for Continental farmers, and that Ireland is finding so profitable and beneficial.

I hear most contradictory reports regarding hatching results. One brown Leghorn breeder I visited yesterday had eighty chickens doing first rate and twenty hens sitting. He has a few recipes of his own, which, judging from results, would be worth knowing. Any

time I pay him a visit his birds are in the pink of condition; and when he shows, which is not often, he can count on every point that is going for condition. Perhaps I may be allowed to give your readers some of his *tips* in a future issue.

In a village not far away there are very few chickens as yet in evidence. We have a proverb "When March comes in like a lion it will go out like a lamb." I will live in hope of these lamb-like spring days. Very rarely have we had more Arctic conditions in the first week of March. Frost has been registered from 10deg. to 18deg. every night, and as I write, on the 8th, a perfect blizzard of snow is raging.

IRISH NOTES.

BY MISS MURPHY.

MARCH is proverbial for weather, but this year it has surpassed all previous records in its severity. As a consequence the price of early hatched birds is likely to rule high.

The "Live Chick" trade is still in its infancy in this part of Ireland, but there are some pioneers doing well at the business. We hear from Miss Egan, of Limerick, that one of the first lots she dispatched in January were sent off when the snow was deep on the ground, and they had to travel for twenty-one hours before arriving at their destination. To make the journey still more trying to the chicks, the last four hours were spent on a "long car," and anyone who has driven on one of these conveyances on a cold winter afternoon can appreciate the discomfort. The chicks arrived in good condition, which is a fair test of the vitality of newly hatched birds and of how much hardship really strong chicks can withstand. We had a still more wonderful proof of their endurance in our own experience. Many years ago we were in the habit of buying an occasional dozen of live chicks from a lady in the South of England, who was then, and still is, an expert in this particular branch. The chicks were dispatched on the Friday night to catch the night mail boat, but by some unfortunate circumstance they missed a connection and were not delivered by the last train on Saturday night. They arrived by the goods train at midnight on Saturday, and were carelessly left aside by a porter, who must have been too sleepy to notice the contents of the box. On Sunday they were again called for, but were not to be found. They were discovered early on Monday, and when the box was unfastened, every one of the twelve chicks was alive, although in a very weakly condition. Most of them died before the end of the week, but the fact still remains that the chicks survived four days without food or water, which is a most remarkable tribute to their power of withstanding bad treatment.

* As a result of the examination held on March 12 at the Munster Institute, two candidates, Miss M. R. Kavanagh and Miss M. R. Johnston, have been placed on the list of instructors in poultry-keeping under the Department of Agriculture.

SELECTIONS FROM OUR CONTEMPORARIES.

An Effective Rat Poison.

The *Almanack de la Gazette du Village* contains the following recipe for destroying rats. It is said to be very effective. Powdered scilla root, $3\frac{3}{4}$ oz. ; powdered sugar, $\frac{3}{4}$ oz. Mix essence of fennel, preferably with the powdered sugar, to give an attractive odour, and keep in a well-corked bottle for use when required. The scilla root, being very greedy of moisture, would quickly combine in a mass if left exposed to the air. In laying down the poison, mix a pinch of the powder with paste, cheese, butter, flour, meat, or tallow, changing the medium occasionally. Rats and mice are very fond of the scilla treated in that way, but dogs and cats and other domestic animals will not touch it owing to the odour of fennel, which they dislike.

Incubator Operation.

The best place to locate your incubator is in a well-aired house cellar or in an incubator cellar. The next best place is in a corner of a good-sized roomy kitchen where the machine can be kept free from draughts. Some of the best hatches we have seen have been made in farmhouse kitchens. Probably the fairly uniform warm temperature and air charged with steam and moisture is responsible for the good results. An unused room of even temperature in a dwelling also makes a good location. It is well to have water boiling in the room if you can. If coal stoves, furnaces, or heaters are used, be sure to provide plenty of fresh air and to avoid coal gas in the room with the machine. Coal gas is fatal to a good hatch. The incubator depends upon the air in the room for the supply of oxygen for the egg chamber, therefore be sure to have plenty of fresh air.—*Reliable Poultry Journal, U.S.A.*

What Hens to Set.

Avoid pullets in their first season ; their use is always attended with risk. Avoid any of the pure Mediterranean breeds ; it is not their vocation. Avoid also a hen that is crossed with any of the Mediterranean varieties, by which I refer to Leghorns, Minorcas, Andalusians, Anconas, &c. I do not like Dorkings, or any five-toed breed, this peculiarity making them clumsy with chicks. Orpingtons, Wyandottes, Rocks, Game, Langshans, and the Old Sussex make excellent mothers. Brahmas and Cochins, though frequently broody early in the season, are not to be recommended.—*Monthly Hints on Poultry.*

Specialist Clubs and the Poultry Club.

The aims and interests of the Poultry Club and the numerous specialist bodies are almost identical. To promote the breeding and exhibiting of poultry, to advance and protect the interests of fanciers, to suppress fraudulent and dishonourable conduct and practices, and to regulate the affairs of the Fancy are among the avowed objects of each one ; while in addition the

specialist clubs aim in a large measure to promote the interests of their own particular breeds. This unanimity of purpose naturally suggests the idea that co-operation and a perfect understanding among the clubs would lead to the consolidation of the Fancy, and in particular strengthen the hands of the Poultry Club in carrying out the work of reform which all admit requires to be performed. It was no doubt originally with the idea of strengthening the club and securing their valuable co-operation that specialist bodies were invited to become associated. There was a time when some of these clubs sent representatives to the committee, and then had a direct voice in the affairs of the senior club ; but latterly I am sorry to say they have come in for very little consideration, and beyond the silver medal which is allotted to club shows the only reasons for the association of specialist clubs at the present time are purely sentimental.—*Poultry.*

Hatching in Egypt.

Methods for hatching eggs artificially are about as old as the Pyramids. The Egyptians were the pioneer poultry-raisers, and they were able to devise a means to do the work of the setting hen or the setting goose—in Egypt geese were the principal domestic fowls. Several of the ancient classic writers have mentioned the skill of the Egyptians in poultry culture. This is from Diodorus, a Sicilian traveller and historian, who visited Egypt about 10 B.C. "Of all the discoveries to which any class of Egyptians attained the one which is most worthy of admiration is their mode of rearing fowls and geese, and by a process their ingenuity has devised they hatch the eggs, and thereby secure an abundance of poultry without the necessity of waiting for the incubation of the hens. The poulterers may be divided into two classes—the rearers and those who sold poultry in the market, the former living in the country and villages, and the latter in the market towns."—*Egyptian Gazette.*

Some "Ships' Poultry."

"Ships' poultry" is passing away with the sailing vessel. The term is a very comprehensive one, and includes everything of bird life, from the fowls and ducks in their "house" near the cook's galley, to the parrot and half-fledged canary in their gloomy homes in the fore-castle. There were firms near the Docks which used to make a speciality of providing "Ships' poultry" to the home-coming sailorman who wanted to take a souvenir of his travels to his friends. Here he could purchase all kinds of foreign birds, and the good people never knew that the parrot they valued so highly had been selected from a store of many others in Ratcliffe Highway or the East India Dock-road. The poultry proper was in charge of the cook, who was held responsible for its safety. It was intended for the table of the captain and first mate, and even if you were no sailor you could tell how far the ship had proceeded

on her outward or homeward voyage by noticing the vacancies in the poultry-house, for the cook would parcel out the birds so that they could be served up at regular intervals, and last until the end of the voyage. If the cook was a master of this art, the skipper always had poultry for dinner the day before the ship reached home. It was a common practice at one time for sailors on sailing ships to purchase pigeons before going on board and release them when a day or so out at sea. As the birds, of course, made for their home, it was a very paying branch of trade for the seller. "Going to take any poultry on board, mate?" a dealer would ask a sailor. "Oh, I think I'll take a pigeon," Jack would say. "So will I," said his messmate, and the smiling trader received the payment for two pigeons, knowing that they would be back in his loft in a few hours' time.—*Feathered World*.

Keeping Old Hens.

Losses are often incurred through keeping old hens. Practical experiments upon an elaborate scale have shown that whilst a hen's first laying season is her best, the second season is sufficiently satisfactory to justify the retention of the bird; but after that time the average hen falls off sadly in productiveness, and it is no longer advisable to retain her when her place might be filled by more productive young birds. Therefore, we regard a hen's period of usefulness as over at the end of her second laying season, and where that rule is not observed and birds are kept on indefinitely (in many cases until they die) it naturally follows that failure is courted.—*Bazaar, Exchange, and Mart*.

Winter Egg-Production.

The first requisite in securing eggs in winter is properly bred stock. Select some standard breed known to be good egg-producers. Mark with toe punch the females that lay during the cold months. Select for the breeding-pen males and females whose ancestors have produced good results in winter.

The second requisite is a proper rearing of the

chickens. Hatch under hens during April or May according to the breed. Give each mother a dozen chicks in a coop by herself. Feed five times daily for the first four weeks. Indian meal mixed with skim milk or most any reliable chick feed answers the purpose. Feed four times daily until the chicks are eight weeks old. Keep them free from lice. Fresh water supplied three times daily, grit, charcoal, and unlimited range where there is plenty of grass, bugs, and shade are all necessary.—*American Poultry Advocate*.

The Colour of Eggs.

There is no satisfactory explanation to account for the variation in the colour of the shells of eggs, and ducks' eggs in particular are found to vary most unaccountably, not only as between breed and breed, as in the case of the common domestic fowl, but there is often a wide difference—from bright green to cream or white—between the eggs of the same breed and strain, all being apparently subject to similar treatment.—*Feathered Life*.



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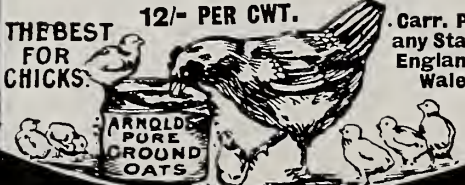
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This is a thing to which many at the present time are giving serious thought. Many have started, but, alas! they have failed. Why? This is the question, Why? I believe everything that is produced for consumption in this country can be made to pay by the producer if he knows how to do the work. Many a man has read such glowing accounts of poultry and small holdings paying that he has formed an opinion that all he has to do is to get this holding, which he thinks is a gold mine, get it stocked with a few fowls, and the job is done. Then, to his horror, he has found there is some work to be done, very often work that is not of a pleasant nature; but to do this work he requires the experience to know how to do it. He has been very sparing, and does his best to save a few pounds in some busy town, and he thinks if he is capable of saving in town, where rents, &c., are high, surely he can do it in the country; but it is not so, as has been proved many times. To those who are thinking of making a start I should like to offer a little advice, although it may not be the best one could get, as many men are much more capable of giving advice than I am. Still, I should be satisfied if I thought I had helped someone just a little. The first question many beginners ask themselves is, Have I enough money to take this place? But it is much more important to first ask, Have I the knowledge to get a living at this business? In many cases this is the cause of failure. There are not many people with independent means that take on this particular thing; if they do they get their experience mostly by the failures they have. If the man has saved, say, £200 or £300, and has no knowledge of poultry, he will have to trust to the Old-Age Pension for support in days to come.—*Poultry World*.

THE ILLUSTRATED POULTRY RECORD LAYING, INCUBATOR, and SITTING HEN CHARTS

have been designed to assist Poultry Keepers, and are not sold to make a profit for the Publishers—the price will tell you that. The Record Sheets are the most complete ever offered, and you cannot afford to be without them. Prices:

100	Laying or Incubator Charts	...	4/6
50	" " " "	...	2/6
12	" " " "	...	8d.
100	Sitting Hen Charts	...	2/6
50	" " " "	...	1/6
12	" " " "	...	5d.

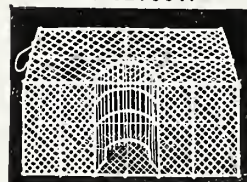
With every four dozen Charts we present, free of charge, a file in which to keep them, or these files may be purchased at 6d. each.

Write for Samples.

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Millions of Sparrows to be caught in WICKS BROS.' Original SPARROW TRAP.

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Worth their weight in gold to—

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Army Land Colony, Hadleigh, Abbot Bros., Thuxton, and many others.

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Best and cheapest Trap ever invented. Price 4/6 each. Special offer, CARRIAGE PAID on Six for 27/-.
WICKS BROS., Manufacturers, NORWICH.

PURE BISCUIT AND MEAT MEAL.

As used by Hundreds of Poultry Keepers all over the Kingdom.
Clean Reliable Food. Free from Excess of Starch and Acid.

Containing 25% of meat 15/6 cwt., 8/3 1/2 cwt., Chick or 1 Contains no
" 50% " 16/6 " 8/6 1/2 " Hen Size (Shell or Grit.

The Percentage of Meat is Guaranteed on the Invoice.

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LECTURES should always be illustrated, as by this means their value is greatly enhanced and made more effective.

The Illustrated Poultry Record Series of Lantern Slides

has been designed to meet the requirements of Lecturers and Poultry-Keepers, County Council Committees, Societies, and Clubs. It is most complete and up to date in all respects.

Slides can be supplied
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"CLARENDON" POULTRY MEAL

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Price 12/6 per 112lb.

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Albuminoids, 20.43. Carbohydrates, 48.20
Oil ... 9.36 Mineral Matter, 6.80

All carriage paid.

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Samples and particulars free.

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Now, the first thing is to make up your mind what you are going in for, then look for a place to suit your requirements. Do not be in a hurry over this; better wait a bit. Perhaps something will turn up some day. When you have found a place to suit you, be sure you know the value of the stock you intend to purchase; always avoid, if possible, buying from the open market, as three-parts of the stock sold on the market are put there because they can no longer be relied upon to show a profit to their owners. Buy your stock from a genuine breeder, who is willing to guarantee that his stock is perfectly sound and healthy. Now, as to working the holding. Begin in a way that you can manage it yourself; avoid as much as possible, at the commencement, paid labour, but after a year or so, if you see your way clear to enlarge your business to your benefit, do so by all means. Should the place be best suited for duck-farming, go in for ducks; don't try to turn it into a rabbitry. The same may be said of growing crops. Some ground grows apples of various kinds to perfection, while cherries, &c., would be a complete failure. Take great notice of these minor details, as these are the things which give or eat up the profits. I should not advise a beginner to start wholly with poultry, but certainly they ought to form part.—*Poultry World*.

TRADE NOTICES.

Mr. Randolph Meech.

This pioneer of good and inexpensive appliances has recently been staying at Kylemore Castle, Ireland, where Mr. Zimmerman is putting down a large poultry plant, for the equipment of which Mr. Meech is responsible. We are reminded that Mr. Meech's 1909 catalogue is something that no prospective purchaser of poultry-houses can afford to do without. No fewer than twenty-seven designs for these figure in its pages, and there is a complete and fully illustrated list of all other appliances produced by the West of England Poultry Appliance Works at Hamworthy Junction. Mr. Meech has established a reputation for vivacious advertising, and the highly fanciful picture of a poultry-house, entitled "Rival," which appears on the last page of the catalogue, is a piece of innocuous fun which will be fully appreciated in the light of the accompanying description: "This house doesn't concern private buyers; it's intended for my competitors . . . the advantages . . . must be purely imaginary."

Messrs. William Cook and Sons' Exports.

Messrs. William Cook and Sons have shipped to clients abroad during the past month the following

COVERDALE'S POULTRY POWDER

(EGG-PRODUCING)

has given such SURPRISING RESULTS and so much CONTINUED SATISFACTION that it is worth while sending two halfpenny stamps for postage of FREE SAMPLE with 16-page booklet, "HOW TO MAKE POULTRY PAY."

G. COVERDALE, Ltd., 28, Parliament-st., YORK.

PAYNE'S PATENT HOT-AIR BROODERS

The finest Chicken-rearing device ever invented; 'twas the first placed on the English Market.

The most foremost of English fanciers state Payne's Brooders are still the finest in existence.

100=Chick size, outdoor	... £3 12 6
60 " "	... 2 7 6
100 " indoor	... 1 15 0

PAYNE'S BROODERS

are the cheapest on the market because you need never lose a chick.

Illustrated Catalogue Free of all my Patent Appliances. Immediate Delivery.

Only Address—

BERTRAM PAYNE

(second son of the late Mr. C. H. Payne, C.E.),
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Fowls' House on Wheels.

THE BEST PORTABLE FOWLS'
HOUSE ON THE MARKET.

Size 7ft. by 5ft. Made extra strong, framing mortised and tenoned, covered with Rustic jointed weather-boarding. Nests on each side. Flap at one side for light and air. Strong wood floor, lock-up door. Mounted on strong wheels and axles. Painted outside and lime-whitened inside.

CASH PRICE £4 15s. 0d.

Sent Carriage Paid, in sections for bolting together.

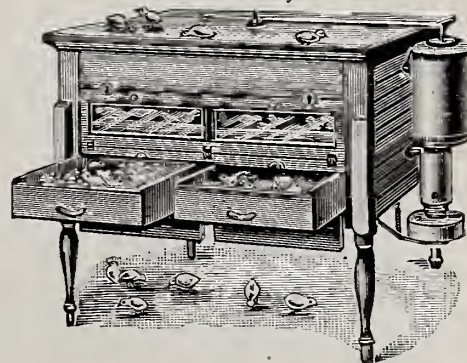
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NON-MOISTURE
INCUBATORS
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BROODERS

are sold on 60 days' free trial. They were the first Non-Moisture Machines to be manufactured in this country.



They contain all the latest improvements for successful artificial incubation, and are the most easily operated machines on the Market. They are good, sound, practical hatchers, built for the Practical Poultryman—the man who is in the business for profit. Illustrated Catalogue post free. Send for particulars of our Rock-bottom Poultry House, 6ft. by 4ft. by 4ft., 21/- carriage paid. Catalogue of every kind of Poultry House, post free.

HORACE W. STEPHENS,
(Dept. H.)
Incubator Manufacturer, **GLOUCESTER.**

birds: Per ss. Orteta, a pen of Plymouth Rocks; per ss. Mesaba, via Messrs. Wells, Fargo, and Co.'s Express, to Kentucky, four pens of White Orpingtons, and by same boat to New York two pens of Buff Orpingtons and one of Whites; per ss. Aragon, to Santos, two pens of White Orpingtons and one of Buffs; per Continental Express to Hanover, Black Orpingtons, and to Baden a pen of Buff Orpington ducks; per ss. Malaga, to Lisbon, a pen each of Buff and White Orpingtons; per Mail Service, a pen of White Orpingtons to Pont Andamer, Eure; also a pen of Plymouth Rocks to Courbevoie; and to Lausanne a pen of Buff Orpingtons; to Turin also Buff Orpingtons; per ss. Royal Prince, to Buenos Ayres, two pens of Black Orpingtons; and per ss. Empress of Britain, for Canada, a pen of White Orpingtons; by Continental Express to Hungary, a pen of Buff Orpingtons; and per ss. Sandon Hall, to Karachi, 115 Buff Orpingtons, three pens of Aylesbury ducks, two pens of Toulouse geese, two pens of American Mammoth Bronze turkeys, as well as Belgian hare rabbits and some pigeons; and eggs of all varieties of Orpingtons, Leghorns, Minorcas, Rocks, and Wyandottes to France, Germany, Switzerland, and Portugal.

Messrs. Chamberlain, Pole, and Co.

This well-known Bristol firm of poultry food specialists write to inform us of a special offer they are making to poultry-keepers just now. In return for three penny stamps, to pay postage, a pound packet of their "Rapid Growth" Chick Meal, or a large free sample of "Rapid Growth" Chick Feed, will be sent to all *bonâ-fide* keepers of fowls who apply for the same. It may be noted that Messrs. Chamberlain, Pole, and Co. have been established over half a century.

Warwickshire Poultry Farm.

Situated one mile from Knowle Station, G.W.R., and in the Birmingham neighbourhood, this establishment consists of over 60 acres of grass land, and accommodates some thousands of birds. The catalogue for 1909, which has been sent us for review, announces that the pens are mated to produce some of the best exhibition birds in Buff and White Orpingtons, Indian and Old English Game, Barred and Buff Rocks, &c., and that the utility pens consist of birds specially mated for production and table purposes. Special crosses for table birds and laying are also mentioned, and sittings of eggs, day-old chicks, &c., are provided at reasonable rates.

J.M.D. Live Stock Appliance Company.

We have received the new illustrated price-list of this Blackburn concern, whose incubators and poultry-houses are well known through the leading exhibitions, where within the last eighteen months they have been awarded nineteen prize medals, two high-class diplomas and other honours. The Company claims that it holds more patents and registrations for improvements than any other firm of its kind. Mr. J. E. Draper, who is at the head of the business, is a member of the Utility Poultry Club, and is always ready to give expert advice on matters connected with poultry.

H. T. Atkinson and Co.

Send us their catalogue of exhibition and utility poultry, eggs, &c. This Ashford firm have lately been very successful at the shows held in and outside of Kent, and now announce that they have greatly increased their stock. The latter includes ducks, geese, and turkeys

**TAKE YOUR LAYERS' RECORDS WITH-
OUT HANDLING BIRDS, by using . . .**

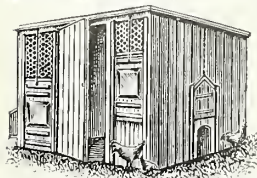
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Easily applied; do not injure legs; distinctive permanent colours, unaffected by weather; clean, plain service; bird's number read at a glance; our code allows for numbering up to 1,000. **WRITE FOR SAMPLE AND PARTICULARS.**

PRICES—10 for 6d., 100 for 4/6, 1,000 for 40/=-, Post Free.

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SUPERIOR THE FOWL HOUSE.



**The Cheapest.
The Best Made.
Nothing to
Equal it.**

One Customer that had 13 writes: "They are a grand lot. Shall be requiring more in the Spring. Shall certainly give you the order." 6ft. by 4ft. by 4ft. high. Complete with Perches and Nest-Boxes, 2 Sliding Shutters, fitted with chain. Fowl Entrance.
In Sections, only 18s. 6d. Coops 2ft. sq. only 3s. 9d.
Illustrated Lists Free.

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Also a Splendid Food for
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ABSOLUTELY CLEAN.

16/-cwt.; 8/6 56lbs., carriage paid.

Write for Samples and Name of nearest
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G. COOPER & SONS,
BRAMFORD, IPSWICH.

They also supply a number of meals and medicines, among which may be noted a poultry meal for laying hens, and "Gapene," a new cure for gapes. The address is Tucker Farm, Warehorne, near Ashford, Kent.

"Clarendo" Poultry Meal.

We have received a sample of "Clarendo" Laying Meal from Messrs. White, Tomkins, and Courage, Limited, which, it is stated, contains over 20 per cent. of flesh-forming elements, 9 per cent. of oil, and 6 per cent. of mineral matter, the foundation of shell and bone-making properties, showing it to be a suitable food for egg-production and rearing chickens. Full particulars will be sent by Messrs. White, Tomkins, and Courage on receipt of a postcard.

running to Penzance, doing the journey to Plymouth in 4¼ hours, with only one intermediate stop. This splendid train serves the holiday resorts right through Cornwall, and reaches its destination (Penzance) as early as 4.25 in the afternoon, the one intermediate stop referred to between Paddington and Plymouth being made at Newton Abbot, at which station a portion of the train will be detached and worked direct to that rising watering-place Kingsbridge, for Salcombe; also on the same date (April 8), leaving Paddington at 8.54 a.m., and running to Exeter in 3h. 57min., stopping only at Taunton en route to detach a through portion of the train for the Ilfracombe line.

A pamphlet giving full details of all Easter excursions, together with a list of beautifully illustrated travel books, can be obtained free at all Great Western Railway offices and stations, or direct from the inquiry office, Paddington Station.

EASTER HOLIDAY ARRANGEMENTS.

GREAT WESTERN RAILWAY.

IT is often extremely difficult to choose a suitable place for an Easter holiday, and it therefore comes as a relief to pick up the Great Western Railway's special Easter programme, which maps out in a clear and concise form numerous excursions for varying periods at low fares and at express speed to the healthiest, most picturesque, and pleasure-abounding resorts in England, thus saving the holiday-seeker a great deal of trouble.

Mention must be made of one or two specialties in the Great Western programme this Easter. For instance, an excursion to the West of England on Thursday, April 8, leaving Paddington at 8.38 a.m. and

GREAT CENTRAL RAILWAY.

TO those who are looking for a restful and health-giving change from the present sphere of worry during the Easter recess, the A B C Excursion Programme issued by the Great Central Railway will strongly appeal.

Within its covers are conveniently tabulated an almost unlimited choice of resorts suitable for all tastes and requirements. The arrangements cover nearly 600 seaside and inland resorts, extending through the Midland Counties, Yorkshire, Lancashire, Lincolnshire, North-East and North-West Coasts, and North of England generally. The trains are equipped with buffet cars, enabling meals to be served on board at a most

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Prize Competition for Amateurs.

A Prize of Two Guineas is offered by the Proprietors of "The Illustrated Poultry Record" for the

Best account of an Amateur's Experience in Poultry-keeping during 1908.

The Essays should not exceed 1,000 words, and may or may not be accompanied by photographs.

The Competition, which closes on May 31, 1909, is limited to amateurs whose stock of breeding fowls does not exceed twenty.

All Essays become the property of the Proprietors of "The Illustrated Poultry Record." The Editor's decision must be accepted as final.

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COMPETITION CLOSING MAY 31, 1909.

reasonable tariff. The special expresses leave Marylebone at convenient times, and arrangements have been carefully made to shorten the journey of the long-distance traveller by bringing his destination as near London as possible in point of time. Special trains will be run on Thursday, April 8, Good Friday, Saturday, Sunday, and Monday (Bank Holiday). Other noticeable features of the programme are the issue of Saturday-to-Monday week-end tickets, frequent day and half-day facilities, and cycle and pedestrian tour tickets to the picturesque and historical country in Middlesex, Herts, and Beechy Bucks. Copies of this comprehensive publication may be obtained free at Marylebone Station, the Company's Suburban Stations, Town Offices, and Agencies, or from the Publicity Department, 216, Marylebone-road, N.W.

SOUTH-EASTERN AND CHATHAM RAILWAY.

EXCURSION TICKETS will be issued to Paris by a special service, via Folkestone and Calais, leaving Charing Cross at 2.50 p.m. on April 8, reaching Paris at 11 p.m., also via Folkestone and Boulogne, by the services leaving Charing Cross at 10 a.m. and 2.20 p.m., on April 7, 9, and 10, and at 10 a.m. on Thursday, April 8, and by the night mail service leaving Charing Cross and Cannon Street at 9 p.m. each evening from April 7 to 10 inclusive, via Dover and Calais; returning from Paris at 8.25 a.m. or 2.30 p.m. via Boulogne, or 9.10 p.m. via Calais any day within 14 days. Cheap eight-day return tickets to Ostend will be issued from April 7 to 12 inclusive. During the holidays the Continental services will run as usual. A special express train (1st, 2nd, and 3rd class) will leave Victoria for Dover Pier at 8.50 p.m., calling at Herne Hill on April 8, in connection with the Calais and Ostend night steamers. A special restaurant-car express service to Switzerland, via Dover, Calais, Laon, and Bale will leave Victoria at 8.50 p.m., Herne Hill 8.55 p.m., Charing Cross 9 p.m., and Cannon Street 9.5 p.m. on April 8.

The home arrangements are as follow: Return tickets to Tunbridge Wells, St. Leonards, Hastings, Bexhill, Canterbury, Whitstable, Herne Bay, Birchington, Westgate, Margate, Broadstairs, Ramsgate, Sandwich, Deal, Walmer, Dover, Folkestone, Shorncliffe, Hythe, Sandgate, and New Romney (Littlestone-on-Sea) will be issued from London and certain suburban stations by any train (mail and boat expresses excepted) on April 8, 9, 10, and 11, available for return up to and including April 13 (day of issue excepted). Cheap day excursions on Good Friday and Easter Monday will be run from the principal London stations to Ashford, Canterbury, Deal, Tunbridge Wells, Hastings, Bexhill,

Whistable, Herne Bay, Birchington, Ramsgate, Broadstairs, Margate, Hythe, Sandgate, Folkestone, Dover, &c. On Easter Monday a special cheap day excursion will be run to Aldershot, leaving Charing Cross at 9.24 a.m. and London Bridge 9.30 a.m., and a cheap half-day excursion will also be run to Whitstable and Herne Bay, leaving Charing Cross at 11.50 a.m., Waterloo 11.52 a.m., London Bridge 11.57 a.m., New Cross 12.5 p.m., and Victoria 11.30 a.m., Holborn 11.25 a.m., St. Paul's 11.27 a.m., Brixton 11.38 a.m., Elephant and Castle 11.31 a.m. Cheap return tickets from London to the Crystal Palace (high level), including admission, will be issued on Easter Monday. Full particulars of the Continental and home excursions, extension of time for certain return tickets, alterations in train services, &c., are given in the special holiday programme and bills.

SCALE OF ADVERTISING CHARGES.

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First line in Bold Type without extra charge.



FOXCOVE,
STOURBRIDGE.
MARCH 20, 1908.

I am now using your Ovary Tonic on my early hatched chicks, and it is bringing them on wonderfully well. I have never had them do so well before.

FRANK BLOOMER.

Prices: 2s. size by post 2s. 4d. In bulk 15s. per ½-gallon (equal to 10 2s. bottles); 25s. per gallon. Carriage paid nearest Railway Station, which please mention. Of all corn dealers, or direct from—

LEONARD SMITH & CO., LTD.,
POULTRY EXPERTS,
60, Bromsgrove St., Birmingham.
MORE AGENTS WANTED LIBERAL TERMS.

HENS

THAT LAY
ARE
HENS THAT

PAY

BENTHAM POULTRY
YARDS, BENTHAM.
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I have given your Ovary Tonic a good trial, both for the production of eggs, and as a tonic for bringing chickens rapidly on. I am recommending it to all my friends.

JAMES TURNER.

